VIDEO TOASTER TIPS – p.56

September 1991
U.S.A. $3.95
Canada $4.95
UK £2.80
An IDG Communications Publication

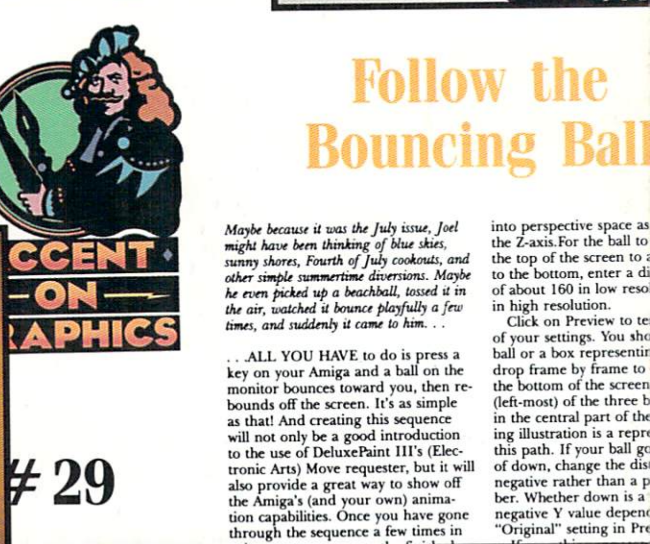
AMIGA WORLD

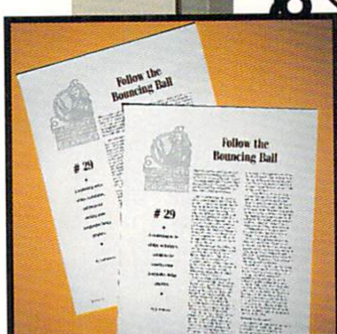
THE NAME OF THE GAME IS...

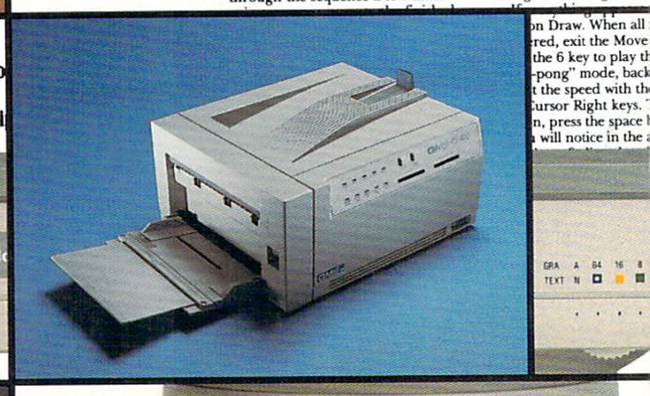
OUTPUT!

- ♦ **PostScript Power:** 5 Low-Cost Lasers
- ♦ **Color Separations:** 3 DTP Solutions
- ♦ **Graphics Export:** Amiga To Mac/PC









PLUS!

- HD Crash Recovery
- "Accent" on Mars
- Mass-Storage Media
- 'Ultimate' Flight Simulation
- A500 Expansion
- ChromaKey Effects



0 74470 65948 8 09

15 programmers & engineers, 4 custom chips, 350,000 lines of code and 5325 cinnamon cats later...





In early 1982 a group of brilliant computer designers in Los Gatos, California set out to create a new kind of computer. Their dream was to build a machine that would contain the visual power that other computers lacked. So they designed breakthrough graphic coprocessors, powerful sprites, and then built it all around NTSC video timing. The nickname for the machine was Lorraine, and its mascot was a red and white bouncing ball.

Thanks, Jay

In October of 1985 Jay Miner and his team of pioneers brought a stunning new creative tool to the world. The Amiga was a shining beacon of the future to a special breed of hackers, artists, and visionaries. One group of these hackers was drawn together from around the country to form NewTek in Topeka, Kansas. They shared a common desire to expand on the technological marvel called the Amiga. They saw the Amiga as more than a computer, it was the beginning of a revolution.



Team Toaster:
Hardware:
Tim Jenison, Brad Carvey, Gary Krohe,* Charles Steinkuehler.
Software:
Tim Jenison, Stuart Furguson, Steve Hartford, Allen Hastings, Daniel Kaye, Steve Kell, Jamie Purdon, Steve Speier, Peter Tjeerdsma, Ken Turcotte.
Documentation:
Robert Blackwell, Nick Lavroff,* Brent Malnack, Steve Peterson,* Tony Stutterheim.
Software Design:
Paul Montgomery, Mark Randall, Kiki Stockhammer.
*not pictured

The Super Amiga

What if the Amiga had more resolution, more colors, more power, more speed; in short, more of everything that makes the Amiga great? It wouldn't be like a computer anymore. It would be as powerful as expensive network-level video equipment. But it would mean designing four complex VLSI chips, it would mean writing 350,000 lines of assembly language software. Ultimately it would mean inventing whole new technologies. Just the kind of insane challenge that hackers can't resist. Perhaps more than anything, the fact that "it couldn't be done" is what drove "Team Toaster" to do the impossible.

"It'll Never Ship"

In early 1987, Team Toaster moved away from the rest of NewTek to a secret location codenamed "Alcatraz." No office hours, no phone calls, no interruptions. They worked 70 hour weeks. They invented bizarre tricks to drive the 68000, copper, and blitter to new levels of performance. They evolved strange hardware hacks to emulate expensive parts. They concocted their own cinnamon candy. Building the Video Toaster became a more ambitious project than the Amiga itself. Every night, every weekend, every holiday, the world went about its business, and the lights at 'Traz kept burning. It didn't matter what anyone else said, Team Toaster was racing after a very personal dream.



These 8 disks represent over 50 man-years of programming effort.

"We Have Toast"

In October 1990 the Video Toaster® shipped. The world noticed. Everyone from USA Today and The New York Times, to Business Week and Rolling Stone, is calling the Toaster the hottest video product ever. It has become the most successful Amiga product of all time.

In fact, the Toaster is so hot that it's bringing the Amiga to new markets. The Video Toaster stand-alone system (an Amiga 2000HD with factory-installed Toaster) was the hit of Comdex, the world's largest IBM PC show, and was even acknowledged as the hit of MacWorld Expo by MacWeek Magazine. The Video Toaster is giving our dealers the opportunity to win over the corporate, educational, and pro video users that the Amiga needs for success in the nineties.

When the Amiga shipped in October 1985 it held the promise of video on a desktop. The shipment of the Video Toaster fulfills that promise. And by the way, the lights are still on at 'Traz.





This sign sat proudly in front of Amiga headquarters in Los Gatos, California, where the desktop video revolution began in October of '85.

VIDEO TOASTER T.M.

NEWTEK INCORPORATED

1-800-843-8934

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TURN YOUR AMIGA INTO A VIDEO PRODUCTION SYSTEM!

***ShowMaker™ is the first** package that turns your Amiga into a complete desktop video solution, providing sequencing of video, animation, and Toaster effects together with mattes*, wipes, titling, and multi-channel soundtracks. In short, ShowMaker lets you quickly and easily assemble full video productions on your Amiga.*



VIDEO PRODUCTION MADE EASY

Integrate video, animations, music, effects, and more with the ease of the mouse. ShowMaker's unique Time-Line Production Interface gives you simple graphic controls to "layout" the order and duration of your elements. ShowMaker lets you assemble your whole production, from animations and video to Toaster effects and sound effects.

VIDEO CONTROL

ShowMaker gives you control over genlocks, videodisc players, and VCRs. Just tell ShowMaker when to cut in your video, and it will automatically search to the correct position and cut or fade in the genlocked signal at exactly the right time.* Video sequencing has never been this easy!

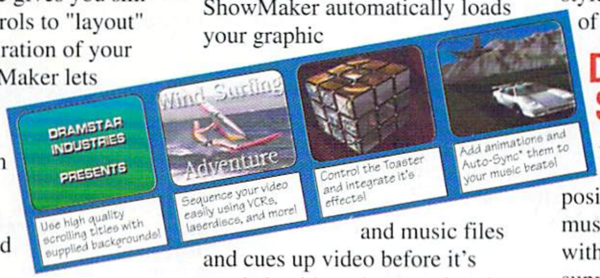
TOASTER POWER

If you have a Video Toaster, you need ShowMaker. Only with ShowMaker can you sequence a series of Toaster effects directly into your production, making for spectacular video. And ShowMaker makes it easy!



AUTOMATIC PRE-LOADING

ShowMaker automatically loads your graphic and music files and cues up video before it's needed, without interrupting the playback. This means you can create long running productions, limited by disk space, not RAM.



BUILT-IN TITLING

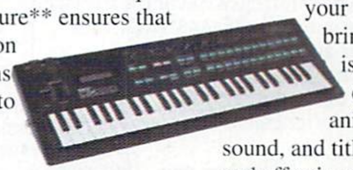
ShowMaker's built-in video titler gives you dynamic scrolling titles. And with ShowMaker you can run titles over video and animation, even adding special effects like drop shadow and outline! ShowMaker also includes a collection of high quality video fonts and exciting backgrounds.

EXCITING TRANSITIONS

ShowMaker features dozens of built-in transitions, including wipes, fades, and dissolves. You can create exciting professional-style transitions with just a click of the mouse.

DYNAMIC SOUNDTRACKS

Add dynamic stereo soundtracks just as easily. Simply position segments on any of the music or sound effects tracks with the mouse. ShowMaker supports MIDI output, MIDI files, SMUS files, and IFF samples. And ShowMaker's unique auto-sync feature** ensures that your production always remains synchronized to the music!



EDITING POWER

With ShowMaker you can preview and refine your production at any time during its development. Then quickly and easily adjust, cut, copy, and paste tracks until your show is perfect. ShowMaker will even generate storyboards and cue sheets to help you visualize and fine tune your production.

IT'S A WRAP!

Hit the play button and ShowMaker plays back your production in real time, automatically synchronizing the video, animation, soundtrack, and titling. A true multimedia presentation. Then record your production to videotape for a first generation Master Tape!



REACH YOUR AUDIENCE

Business, education, presentation or entertainment. Whatever your message, video brings it to life. There is no easier way to combine graphics, animation, video, sound, and titling into exciting and effective productions. ShowMaker turns your Amiga into a video production system. Join the video revolution by seeing your dealer or calling us at **1-416-602-4000**.

By the way, this entire ad was created with Professional Page 2.0 desktop publishing software, another high quality Gold Disk product.

GOLD DISK
P.O. Box 789, Streetsville
Mississauga, Ontario, Canada
L5M 2C2 (416) 602-4000

*Additional hardware required
**Patent pending. ShowMaker and Professional Page are trademarks of Gold Disk Inc. All other products mentioned are trademarks of their respective owners.

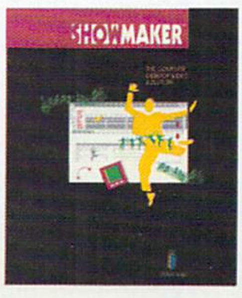
SEE THE POWER!

Drop by your local dealer and ask to see our new ShowMaker demonstration tape "Multimedia Muscle", produced entirely with ShowMaker!

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SHOWMAKER

The Complete Desktop Video Solution



VOLUME 7, NUMBER 9 SEPTEMBER 1991

·C·O·N·T·E·N·T·S·



Getting good output for what you create on your Amiga—text, graphics, video, animations, or whatever—is the all-important, yet tricky final step in the process. Our "Amiga Output" special this month attacks the problem on several fronts, from low-cost PostScript laser printers, through desktop publishing and color separations to image-processing-and-conversion among different systems. So, let's get it on and get it out!

COVER PHOTOGRAPH BY ED JUDICE

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Introducing the

AMIGA® 500 FITNESS PLAN

GVP's New Series II™ A500HD8+ Puts A2000® Computing Power and Punch into Your Amiga 500

IMPACT Series II



By now you know that every Amiga 500 comes with that special built-in program called "Wait". Wait while your A500® loads software. Wait while you save files. Wait while you change disks. *It doesn't have to be that way!*

GVP's Series II A500HD8+ Takes Off the "WAIT"

GVP's Series II A500HD8+ 40-105MB Hard Drives work like the world's fastest runners to take the "Wait" off and to get your Amiga 500 racing along at data transfer speeds of up to 52 times faster than floppy disk drives.

But getting rid of the "Wait" is just the beginning...

GVP's Series II A500HD8+ Turns Floppy Fat into HARD DRIVIN' Muscle

Because the Series II A500HD8+ uses the same custom VLSI and **FAAASTROM**™ technologies of it's powerful cousins – Series II A2000 SCSI+RAM – you get more than an amazingly fast hard drive. You get the storage space of 45 to 136 floppy disks, depending upon the model you choose.

You *also* get Series II's:

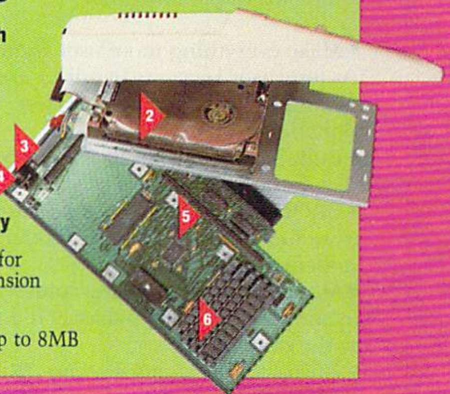
- ✓ Exclusive Game (Hard Disk disable) Switch for Full Games Compatibility
- ✓ A2000 DMA Data Transfer Speeds.
- ✓ FAST RAM expansion with up to 8MB of SIMM-Based Internal RAM Expansion
- ✓ "Mini-Slot" Access to All A500 Expansion Bus Signals for future expansion.
- ✓ External SCSI Port for adding up to 7 SCSI Devices
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- ✓ External Mounting to Maintain Your Original Commodore Factory Warranty
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- ✓ One-Year GVP Factory Warranty.

GVP's Series II A500HD8+ Keeps Your Amiga 500's Sleek Good Looks

GVP knows that no fitness plan is complete unless is keeps your system looking great. That's why your Series II A500HD8+ matches your Amiga 500's good looks line-for-line, curve-for-curve.

So get a GVP Series II A500HD8+ hard drive for your Amiga 500. Lose the "Wait" and Gain the Muscle.

Important A500HD8+ Body-Builders



1. **Game Switch**
2. **Hard Disk Drive**
3. **External SCSI Port**
4. **Free Power Supply**
5. **"Mini-Slot":** for future expansion
6. **Internal RAM Expansion:** up to 8MB

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CHIEF CONCERNS

Getting what you want.

EVERY YEAR OUR advertising department willingly coughs up a bunch of dough to survey our readers. Since their job is to sell, they are mostly hot on nuts and bolts stuff like what you own, what you plan to buy, and how much money you have.

At about the same time, the editorial staff antes up for another survey. Since we're not allowed to sell anything, we only need to know what you love or hate about the magazine. And believe me, we hear plenty! Between the two surveys, we end up with a decent idea of what Amiga users want from *AmigaWorld* and from developers.

In one part of the sales survey, people were asked to describe things they want developed. Some of their requests were kooky, others quite broad, many highly specific, and a few I just couldn't understand.

As you might expect, lots of readers wanted to have more of the staples: 2-D, 3-D, music, multimedia, and video software. This stuff is sorta like women and booze to a Kennedy. Some results were less expected, such as despairing wails about the huge void in the area of scientific software.

Other desires are as follows, in no particular order (with lame editorial comments in parentheses):

- Make everything more user friendly. (As long as it keeps its hands to itself.)
- Games specific to Amiga. (Here, exploitation is a good thing.)
- Built-in 24-bit graphics. (Very cool idea, but which one?)
- PRODIGY access. (So we can also waste money buying stupid products by modem.)
- Model railroad simulator, plus a layout planner and database. (It'll sell by the dozen.)
- Guru-free operating systems. (Right after Andrew Dice Clay marries Gloria Steinem.)
- Jeopardy. (Then we can all feel stupider than Alex Trebek.)
- Script-writing software. (So more of us can suffer the fate of rejection.)
- Diagnostic software. (My 500's fallen, and it can't get up.)
- A port of Microsoft Windows 3.0. (Guaranteed to slow down the fastest Amiga.)
- Software to help in writing stories. (Just keep it away from annoying overachievers like Stephen King and James Michener, okay?)
- Space technology software. (Did Arthur C. Clarke get a survey?)
- Sewing and knitting patterns on disk. (A darn good idea.)
- Genealogical programs. (Able to track Shirley Maclaine's previous lives?)
- Telephone tone-activated interface for remote programming of a VCR. (You'll never miss Bryant Gumbel again.)
- Multimedia word processing. (Slaps you upside for grammatical errors.)
- Home finance. (Can I really afford this home-finance software?)

There were a number of gripes, one of the biggest being the quality of our productivity software. One user put it this way: "How about a package that contains a word processor/database/spreadsheet that a 'normal' person could use?" In fact, the two products users wanted ported the most were Microsoft Excel and Lotus 1-2-3. And overall, the most requested applications were Business and Financial.

We also learned what you think of us. For instance, only 2.8% throw *AmigaWorld* away after reading, and the article found most useful or interesting in the past 12 months was "Welcome to a New Generation" (June '90), which broke the story of the A3000. We're not sure what percent threw this one away.

Although we seem to provide a good mix of applications coverage, and are about as technical as the majority would like, we're not perfect. According to readers, a few areas that need more attention are: the A1000, how other people use the Amiga, education, and news.

Sorry game haters, but entertainment still tops people's shopping lists. Maybe that's why one person said, "I was meaning to get serious with my Amiga, but I'm having so much fun that I put that idea on hold."

STRIKE ME, MATE!

Words are strange creatures. When spoken, they have emphasis and inflection. Written words, however, are inert, completely subject to interpretation, and as a result are quite often misconstrued. That is why editors must take extra care to craft words so the real message is conveyed.

Two recent items had a couple of readers ready to, as they say in Australia, strike me pink. The first was the description of a bomb that was sent over Iraq, dedicated to yours truly. This was mentioned in the context of lots of "interesting" things that happen as a result of this job.

But as with any war, there is also great human toll that includes innocents and participants alike. Thanks to reader Marthe Arends for highlighting the latter point.

We also ran a letter, published verbatim, from Jury Vladimirov of Moscow. At first, we considered correcting the grammar and spelling, but the more we looked at it, the more the sense of its speaking from another culture came through in the use, or misuse, of the language. That was the intent. The interpretation from at least one reader was that we were poking fun at Jury. Hey, pal, we're big fans of anyone who writes us—especially all the way from Moscow, in our language.



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If you wish to enhance your Amiga 2000® with

MORE MEMORY, a HARD DRIVE, or BOTH

wish no more—GVP has the solution for you.

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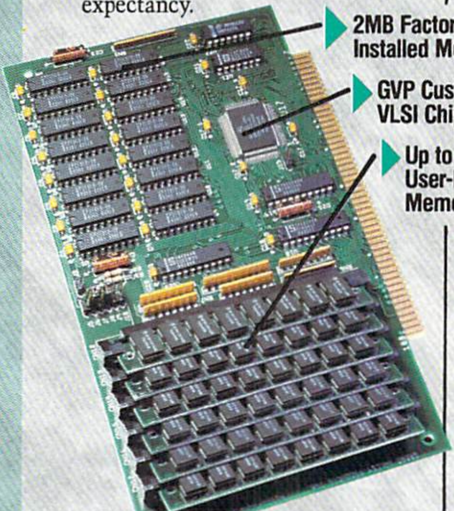
Choose GVP's Series II RAM Expansion Board, SCSI Hard Drive Controller or SCSI+RAM Hard Disk Card. Realize the potential of configuring your perfect solution without any need for compromise!

RAM Expansion

SII A2000-RAM8/2: **The smallest and most compact 8MB RAM expansion board for the A2000!**

Features:

- ✓ 2MB of factory-installed RAM, expandable to 8MB.
- ✓ All memory fully Auto-Configured.
- ✓ Also supports 6MB configuration for maximum memory utilization for Commodore's A2088/2286 "bridgeboard" users.
- ✓ Uses easy-to-install, industry standard, SIMM memory modules. No more bent pins or incorrectly inserted DRAM chips!
- ✓ GVP's state-of-the-art VLSI technology has reduced an 8MB RAM expansion board to a "half-card"! This translates into a lower parts count and also means the highest possible reliability and life expectancy.



SCSI Hard Disk Controller

SII A2000 SCSI "Hard-Disk-Card": **Specifically designed for those users who don't need memory expansion but still need maximum hard disk performance at a budget price.**

Features:

- ✓ Incredible SCSI hard disk performance achieved through GVP's innovative new custom chip design.
- ✓ Supports virtually any SCSI device including: CD ROMs, tape drives, Bernoulli drives, removable hard drives . . .
- ✓ Fully implements Commodore's Rigid Disk Block (RDB) standard as well as the new DIRECT SCSI interface standard.
- ✓ Allows direct AUTOBOOT from Fast File System Partition.
- ✓ Simplest and easiest SCSI installation in the industry.

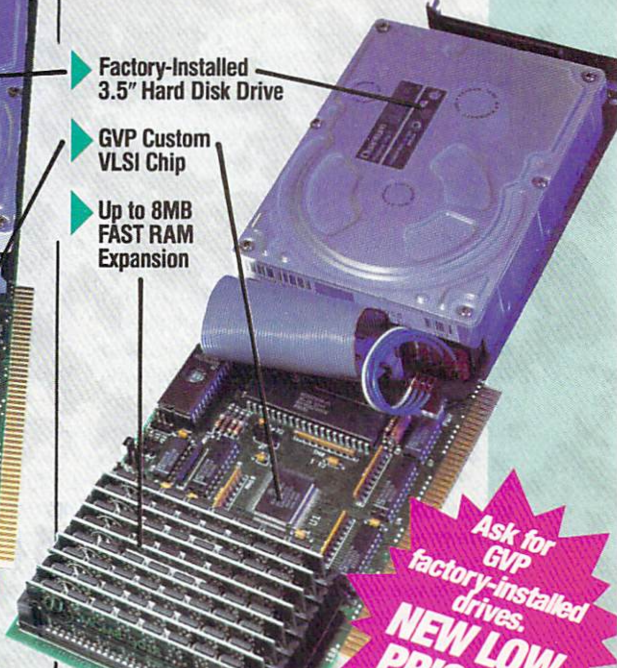


SCSI Hard Disk+RAM Expansion

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- ✓ Easy-to-install SIMM memory modules allow flexible memory configurations for Zero through 8MB. Supports 6MB FAST RAM configuration for BridgeBoard users.
- ✓ Supports virtually any SCSI device.
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OVERSCAN

News, New Products and Networks

Summer CES: Hot on the Outside, Cool Within

CHICAGO—Air-conditioned McCormick Place was a comfy retreat from steamy city heat as it hosted the 1991 Summer Consumer Electronics Show in June. Commodore commanded a powerful presence, but not in the computer area. Rather, CBM (RS# 117) set up in the home entertainment/audio/video area, amid such electronic giants as Toshiba, Sharp, and Panasonic. Hourly presentations and a roving camera crew from CNN lent a serious, business-like atmosphere to the Commodore arena.

The A690 plug-into-the-side-of-your-A500 CD-ROM drive displayed soon-to-be released CDTV titles. Apparently, most CDTV developers had some form of representation in the crowded Commodore booth, where they demonstrated their respective titles in various stages of development. Among the most impressive of these were **The Guinness CDTV Disc of Records** from Commodore's own ***CDTV Publishing***. (RS# 118.)

Specialty computer-and-software bundles were also on display. **The Amiga 500 Deluxe Pack** ($699), the "premium home system," proved to be a one-meg A500 packaged with an adapter that lets you use your television as a monitor. The package also includes seven rather time-worn programs: The Disk Company's KindWords 2.0 word processor, MaxiPlan Plus spreadsheet, InfoFile database manager, and Fusion Paint graphics program, plus Deluxe Music Construction Set (Electronic Arts) and two games—Ports of Call (The Disk Company) and Zany Golf (Electronic Arts).

For those wishing less standard equipment, CBM offers the **A500 Discovery Pack** ($599), this time a one-half-meg machine that is accompanied by the TV adapter, KindWords 2.0, and Ports of Call, but with the elderly Electronic ►

Art for the Artist's Sake

The 19th-century artist George Inness was known for landscapes. So is **ScapeMaker**, new from ***MegageM***. The software ($29.95) converts any IFF image to a landscape (DEM, or Digital Elevation Map) file for 3-D rendering in Virtual Reality's Vista and Vista Professional programs. ScapeMaker accepts all resolutions, in both NTSC and PAL standards. (RS# 107.)

Unlike Inness, award-winning Amiga artist Louis Markoya is known for pixelized 3-D scenes. But that's not all Lou has to his credit. Now comes his first software offering, **Map Master** from ***Computer Imagery***, in versions for use with NewTek's LightWave 3D and Impulse's Imagine. The menu-driven Map Master (priced at $99.95 and $69.95, respectively) promises immediate access to all the image-mapping capabilities of your 3-D renderer—with little or no learning time required. The manual offers hints on how and where to use your program's various image-mapping features, and it describes the 14 hi-res textures that are provided on two Map Master disks. (RS# 108.)



MapMaster: texture maps and how!

If it's IFF-24 backgrounds you want, **Screen-Maker** ($395, ***Digital Graphics Library***) fits the bill. Available in both NTSC and PAL formats, Screen-Maker works with any 24-bit video board for the Amiga. These ready-made backgrounds consist of various textures and images fashioned into frames, panels, and so on, and can be modified for your own particular needs. (RS# 109.)

While ***Microft***'s **VidGen** 2.0 ($149.95) is different than Screen-Maker, it also fits the background bill. You supply a graphic or select one of those provided with the program, and VidGen almost instantly generates a screen full of cloned images. You can change spacing, contrast, color, depth, and so on; add highlighting, embossing, and titling effects; scroll your background in any of eight directions; and more. VidGen supports the overscan resolutions of such programs as DeluxePaint III (Electronic Arts), the Pro Video products from Shereff Systems, and Broadcast Titler (InnoVision Technology). (RS# 110.)

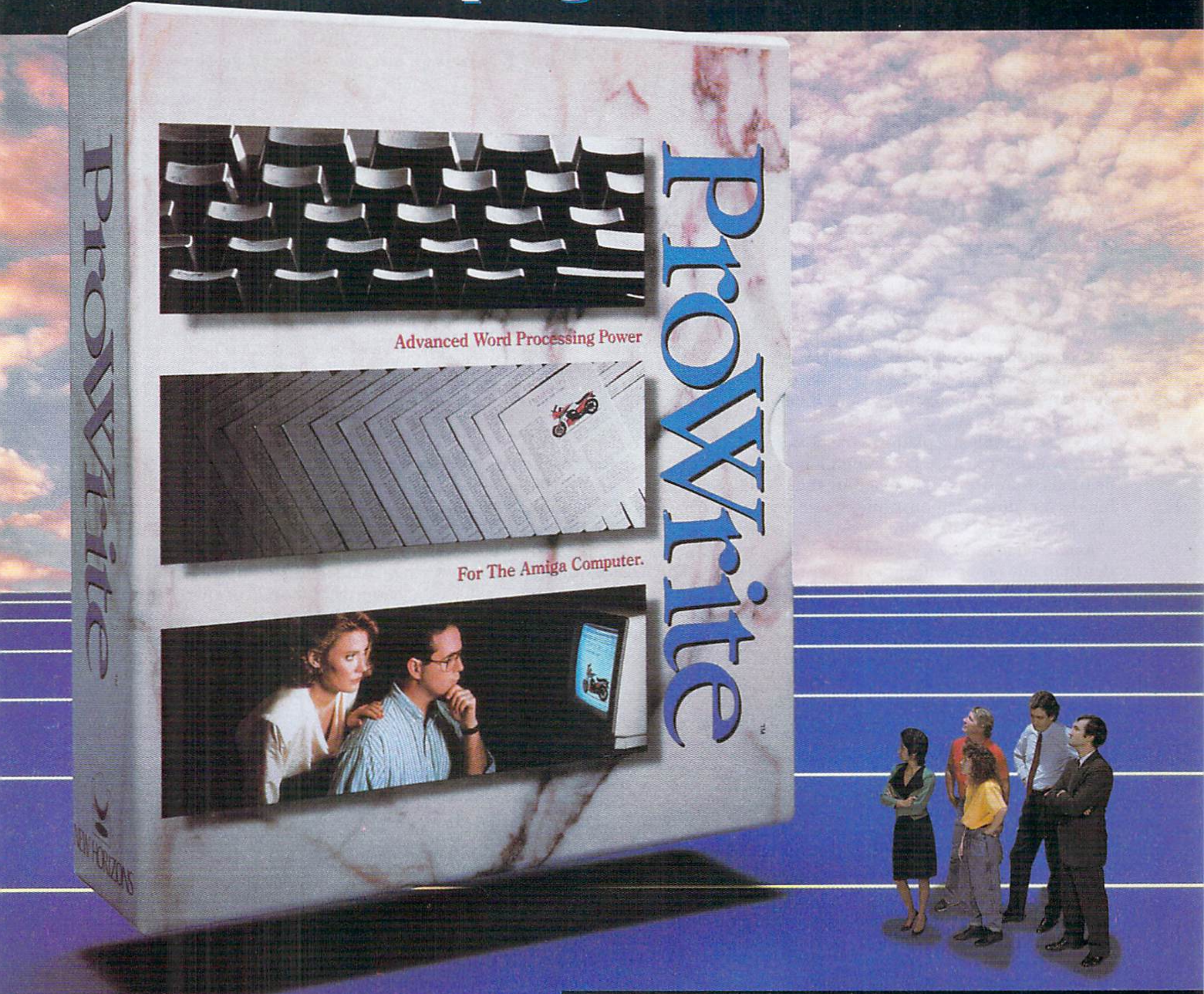
Need some text to put over your backgrounds? **Broadcast Fonts 3D** is available in three volumes, each of which is $49.95 and provides three fonts. Crafted to support Phong shading for the best possible results, the fonts are supplied in Imagine's TDDD format, but developer ***Unili Graphics*** will convert them to other formats if you so request. (RS# 111.)

For animated titles, try **Blackboard** ($35, ***Blue Shadow Productions***). Designed for use with DeluxePaint III in any resolution, Blackboard fonts are appropriate not only for animations but also for single frames. (For use in animations, you should have 1.5 or 2MB of RAM.) As with Broadcast Fonts 3D, these are provided in upper- and lowercase with numbers and symbols, all of which you can manipulate individually. (RS# 112.)

—BG

For information about the vendors of products, see "Manufacturers'/Distributors' Addresses" list on p. 100.

How Does The Competition Measure Up Against ProWrite?



They Come Up Short.

ProWrite®. Performance That Stands Out In A Crowd.

In this highly competitive world, there is always a leader. An innovator. The one that the competition looks up to. In the world of Amiga word processors, ProWrite is that leader.

ProWrite has the high performance features you need. A 100,000 word spelling checker that can check as you type. A thesaurus with over 300,000 cross references. Multiple columns with both snaking and parallel text flow. Multiple fonts and graphics. Powerful macros. Exceptional speed.

With all this and more, ProWrite stands head and shoulders above the competition. Which is why ProWrite is the best selling Amiga word processor. And the best choice for every Amiga owner.

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Look To The Leader In Amiga Word Processing.

Like all of our products, ProWrite combines high performance, an intuitive environment, and easy to use commands. When it comes to powerful yet practical word processing, ProWrite is the target the competition shoots for.

So whatever your word processing needs, from A/V scripts, to novels, business reports, storyboards, or letters to Aunt Agnus, go straight to the top. Discover the power of ProWrite from New Horizons.

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206 Wild Basin Road, Suite 109
Austin, Texas 78746 (512) 328-6650

Circle 36 on Reader Service card.

Arts' DeluxePaint II (yes, you read that right) and Broderbund's Where in the World Is Carmen San Diego? substituted for the other software.

CBM also announced the **Amiga 2000HD Professional**—a one-meg A2000 with a 50MB autoboot hard card ($1999). The hard disk is installed with these applications: TransWrite, Advantage, GoldFile, PageSetter II, MediaShow, Paint 2000, and Music 2000 (all from Gold Disk), and Consultron's CrossDOS.

PLAYERS' CLUB

Although Commodore was not represented in the more traditional floppy-based entertainment displays in McCormick North, third-party game developers were there showcasing their electronic wares as in past years. MS-DOS is seemingly the platform of choice for new game releases, but some manufacturers found enough space in their booths for Amiga demonstrations. Some also promised CD-based releases.

Konami had more new Amiga game titles than any other Amiga developer on the floor. The company released **Bill Elliot's NASCAR Challenge** ($49.95), an action-packed car-racing game, and announced several others. By October, you can expect to see **Back to the Future Part III**, **Speedball 2**, and **Team Suzuki** (each $39.95), **Riders of Rohan**, **Spacewrecked**, and **Killing Cloud** (each $49.95), plus **Teenage Mutant Ninja Turtles-The ArcadeGame** (no price set). (RS# 119.)

Electronic Arts and its affiliates were also ripe with soon-to-be-released titles, all at $49.95. Amiga gamers can look forward to **Black Crypt**, which Electronic Arts expects to be its most significant summer release. This Dungeons-and-Dragons-type adventure employs theAmiga's Extra_HalfBrite and 64-color modes. **Birds of Prey**, a flight simulator, is rumored to offer over 40 aircraft and should be out by the time you read this. Affiliate UBI Soft promised **Pro Tennis Tour II** and **Battle** ►



OVERHEARD

Recent weeks have brought a spate of company changes in the Amiga market.

Lake Forest Logic's product line has been acquired by Great Valley Products. If you should need tech support for the Disk Mechanic, ADAPT, or Macro Paint, phone GVP at 215/337-8770 or dial the GVP BBS at 215/337-5815.

Hologramophone Research has granted Centaur Software exclusive worldwide rights to its music products. Owners of the Pixound musical graphics package and the Hyperchord sequencer can upgrade to new versions through Centaur.

M.A.S.T. has also struck a deal with Centaur, which is now the exclusive North American distributor for M.A.S.T.'s Colorburst 24-bit video board. Centaur will provide tech support for Colorburst users and stock other popular M.A.S.T. products, including memory boards, hard-disk controllers and multipurpose cards, and floppy drives. Whatever products or information Centaur cannot provide, M.A.S.T. will.

New Horizons has gobbled up Central Coast Software (famous for such disk-utility programs as MAC-2-DOS, DOS-2-DOS, Quarterback, and Quarterback Tools) and formed a new utility division.

Precision Software, makers of the Superbase Professional and Superbase Personal database managers, has been acquired by PC supplier Software Publishing, which was apparently interested in Superbase for Microsoft Windows.



ON-LINE SCAN

By Tim Walsh

Little more than a stone's throw from *AmigaWorld*'s Peterborough, New Hampshire offices are those of *Byte* magazine and its telecommunications arm, BIX—the Byte Information Exchange. Although I am sometimes scolded for it, I have never covered BIX in this column as thoroughly as the other networks. The reason is that Amiga users typically get BIX accounts only after they've had accounts on GEnie, CompuServe, or American People/Link.

BIX, the focus of this month's installment, is one of the most technically-oriented telecommunication networks for Amiga users. Unlike other nets, it lets you chat, argue, debate, and be subjected to praise or criticism by some of the most prominent Amiga developers and CATS (Commodore Applications and Technical Support) staffers. While other networks also offer access to technical people, BIX gets the nod for the number and rapid response times of its techies.

Recently, I asked Joanne Dow, Amiga enthusiast extraordinaire and editor of BIX's Amiga Exchange, what really sets BIX apart from other networks for Amiga users. "Amiga activity is disproportionately large because of the Commodore presence and the high signal-to-noise ratio for technical questions," she stated. BIX, she explained, is the most cost-effective telecommunications solution, considering the time and money lost searching through "noise" when getting on to one of the big networks.

I know all too well how such "noise" hampers the search process, and I decided to put Joanne's claim to the test. Suppose you need a printer driver for your new printer. How long does it take to get on line and to the drivers? I clocked the process—starting when the software autodialed and ending when I was in the Amiga area looking for a driver—at 2400 baud during prime-time hours. With GEnie, the procedure took one minute, 44 seconds; CompuServe required one minute, 29 seconds; and PLink took a scant 43 seconds. BIX required 57 seconds. Although BIX was not as fast as PLink, it was significantly faster than GEnie and CompuServe.

I do agree with Joanne's statement that of all the networks available to Amiga users, BIX is the most technical—even more so than USENET. If you have a problem getting hardware or software to work, Joanne says the answers you need are either already there or readily obtainable. She has had several users comment that after days of trolling for answers on USENET or other commercial services, they turned in desperation to BIX and received accurate answers inside of a few hours.

Another great feature of BIX is its database of Amiga "how-to" reference material. In the Amiga conference area, you can find countless remedies for common maladies, and even Joanne's own discussions of how to configure two 80-track 5.25-inch CP/M-type drives as standard 3.5-inch AmigaDOS drives.

The listings and download area offers roughly 1800 freely distributable Amiga files, and, finally, *AmigaWorld* and *The AmigaWorld Tech Journal* share highly visible areas within BIX's Amiga Exchange area. This all adds up to a good source for technical information and a good way to let us know what you think of the *AmigaWorld* publications.

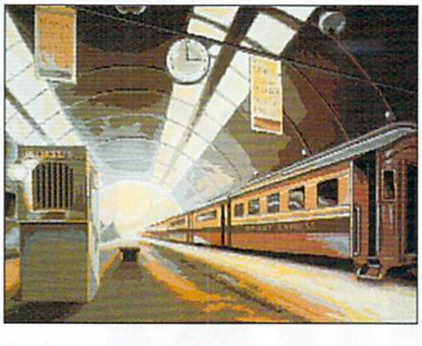
For more information on BIX, call the service's voice lines at 800/227-2983 or 603/924-9281.

Isle for the third quarter. (RS# 120.)

At the nearby ***Interplay*** booth, I learned about the imminent release of **Battle Chess II** ($49.95), which will be followed by **Lord of the Rings, Volume I** ($54.95), and then by **Castles** ($59.95) in October. Also, the original **Battle Chess** is slated for CDTV format ($59.95). (RS# 121.)

Psygnosis showed the popular game **Lemmings**, now in CDTV format ($49.99). Psygnosis also promised a hefty number of floppy releases at $49.99 each: Agony, with its parallax-scrolling screens; **Atominos**, with 60,000 levels; and **Aquaventura**, an interplanetary game scheduled for September that promises to be the company's hottest release of the year. **Leander** ($49.99), an animated adventure game, is scheduled for third-quarter release, as are **Barbarian II** ($44.99) and the eagerly-awaited **Shadow of the Beast III** ($59.99). Finally, Psygnosis demonstrated **Fractal Engine**, the only nongame title I saw on the show floor. Due in mid '92, it is a landscape generator that produces impressive scenes for use in all manner of graphics applications. (RS# 122.)

ReadySoft has announced a Dragon's Lair-format game called **Guy Spy**, and a sequel to Space Ace dubbed **Space Ace II: Borf's Revenge**. (RS# 123.)



You'll love Heart of China's graphics.

Capstone Entertainment announced **The Cardinal of the Kremlin** ($49.95), a strategy game based on Tom Clancy's novel of the same name, and a bundle called **Big Deal** ($59.95), which includes Trump Castle I, Chess Master 2000, and Ging King/Cribbage. Capstone also promised **Trump Castle II** ($49.95) for gambling aficionados. (RS# 124.)

Accolade was on hand to announce the third-quarter release of **Jack Nicklaus' Golf** in CDTV format ($59.95). On floppy, the company will release **Jack Nicklaus' Course Designers Clip Art Volume I** ($24.95), **Altered Destiny** ($59.95), a role-playing graphic adventure, and **Stratego** ($49.95), a computerized version of the classic board game. For the fourth quarter, Accolade also promised **Elvira II: The Jaws of Cerberus** ($59.95), wherein you must rescue the ever-charming Elvira from all manner of mayhem. (RS# 125.)

US Gold announced its upcoming 3-D graphics wonder, **Cybercon III** ($49.95), as well as **Murder!** ($44.95), a mystery game with over three million crimes to solve. **Knights of the Crystallion** ($59.95), with ray-traced HAM graphics, and **The Godfather** (price not yet available), based on the movie, are promised for third-quarter release. (RS# 126.)

Dynamix showed **Heart of China** ($59.95), a beautifully detailed adventure game set in 1930's China. Look for **Rise of the Dragon** ($59.95), another interactive adventure (this one based on genetic mutations) in August. Dynamix also mentioned **Red Baron** ($59.95), a WWI flight simulator. (RS# 127.)

Although Chicago seemed hot as ever on CES weekend, the Amiga games market did not. Some companies, such as Origin Systems, are dropping the Amiga altogether and concentrating solely on the PC. Let's hope that by next year both the economy and Amiga games development will have warmed up. *—TW*

NEWS PRINT

"To overcome the slowness of HP compatibility, we used a RISC (Reduced Instruction Set Computing) processor. That gives 8ppm (page-per-minute) performance to a 4ppm engine," said ***Star Micronics***' marketing director Gary Bailer of the company's just-released **LaserPrinter 4 StarScript** printer. Star promotes the $1995 black-and-white unit as the industry's lowest priced RISC-based PostScript printer.

Compatible with the Hewlett-Packard LaserJet IIP, the LaserPrinter 4 accepts IIP font cartridges. Its 50-sheet paper tray accommodates a variety of paper sizes, including labels, envelopes, and post cards, and you can add a larger paper tray as well. Along with the Intel i960 RISC microprocessor, the printer houses two megabytes of RAM (you can add four more), and it provides parallel, serial, and AppleTalk connectors, plus 35 outline fonts. (RS# 101.)

AND COLOR!

Color PostScript output is now more affordable, too, thanks to some other arrivals. ***NEC***'s new **Colormate PS Model 40**, for instance, lists for $6995. Featuring 4MB of RAM and 17 Adobe typefaces, the unit accepts letter and A4 size sheets. An upgrade kit ($2000) provides an extra 4MB of RAM and 18 fonts on two daughterboards, as well as accepting legal-size pages, to let graphic artists, designers, and engineers produce sophisticated graphics. (RS# 102.)

Another 300-dpi, thermal-transfer color PostScript printer with a $6995 price tag is the **ColorScript 100 Model 10p**, from ***QMS***. Like the NEC Model 40, it comes with 4MB of RAM, runs on a 68020 processor, and provides four connectors: parallel, serial, AppleTalk, and a SCSI interface for downloading type and graphics from hard disk. More PostScript typefaces are standard, however—35 in all.

The 10p prints on 8½x11 paper and transparency. Depending on the type of color you want, you can use either of two ink rolls: one for brighter, more saturated colors, and another for Pantone colors. Says Neil Armentrout of QMS, "Our newest color PostScript printer (the 10p) is at the right price/performance point for business-presentation users, while our higher-end products will continue to serve desktop publishers and graphic artists." Included among those "higher-end" printers is the price-reduced ColorScript 100 Model 30i (now $10,995), which provides 8MB of RAM and accepts 11517 sheets. (RS# 103.) *—BG*



OVERHEARD

Kolff Computer Systems (KCS), the Dutch company that manufactures the Power PC Board, notified us that it never received the registration forms of American buyers from its former distributor, the now-defunct Pulsar. KCS requests that Power PC owners send their name, address, and the Phoenix Bios serial number (noted on the board's blue sticker) to Supra Corp., 7101 Supra Dr. S.W., Albany, OR 97321, Attn. Tech Support.

Supra, the new North American distributor for the board, will be ready to provide support as of September 1, and thereafter can supply you with updates. A software revision that KCS is currently working on promises support for most Amiga hard-drive interfaces.

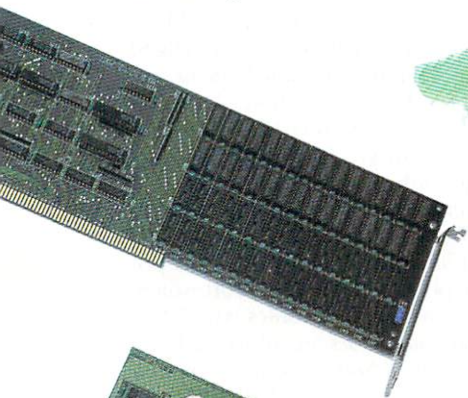
Overscan is compiled by Barbara Gefvert, Janine Jackson, and Tim Walsh. Send your news, new products, and network information to Overscan, *AmigaWorld* Editorial, 80 Elm St., Peterborough, NH 03458. ■

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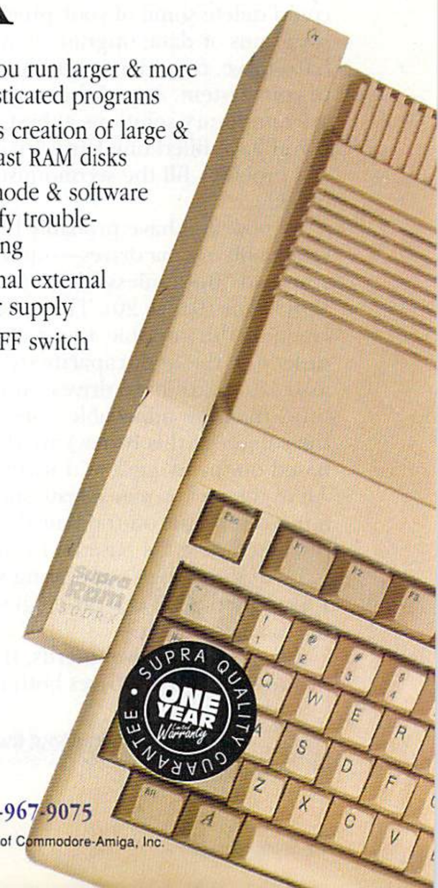


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REVIEWS

Removable Media Drives

GVP-Ricoh
IVS Infinit 40
Nexus HardPack 44
SupraDrive Removable

Take the data and run.

By Morton A. Kevelson

WHILE THE TERM removable media may make journalists a bit nervous, what removable media means to Amiga users is a lot of storage space for those prize-winning animations, highly sensitive scientific data, or as many games as an enthusiast can safely enjoy.

Hard-disk, or fixed-media, drives provide copious amounts of fast, online storage at a reasonable cost. Sooner or later, however, even the largest hard drives fill up. In the past, your options were somewhat limited: You could delete some of your precious programs or data, upgrade to a larger hard drive, or add a second hard drive to your system. Any of these options are temporary solutions at best, for if you have filled one hard drive, you will probably fill the second just as quickly.

By now, you have probably heard of removable-media drives—especially if you read "Bottomless Disks" (*Amiga-World*, Apr. '91, p. 20). These devices combine the portable aspect of floppy disks with the high-capacity storage associated with hard drives. At this time, the most affordable systems (and the subject of this review) are those based on the Syquest and Ricoh drives. All of the performance tests and operating comments on the four drives discussed here are based on version 1.3.2 of the Amiga's operating system. I formatted all of the cartridges using the FastFileSystem.

Taken on their own merits, the Syquest and Ricoh drives both perform about the same according to my experience. The differences among the drives reviewed here lie in how the elements of the entire system—Amiga, controller, and drive—work together. The results of testing these setups appear in the accompanying chart on page 16.

What's in a Name?

When working with removable-media devices, the distinction between the physical device name and the volume, or logical, name becomes very important. The operating system defines physical device names such as df0: for a floppy drive, or RAM: for the Amiga's memory-storage device. By contrast, you specify the physical device name for hard and removable-media drives during the formatting process. Each partition must have its own unique physical device name, which you can change only by rewriting its mountlist entry or by altering the rigid-disk blocks created by the host adapter's installation software.

Volume names appear on the Workbench screen with accompanying icons when you insert disks in a floppy drive or when hard-drive partitions are present. You can easily change volume names with the Workbench Rename menu option or the CLI's Relabel command. When specifying an AmigaDOS path, the physical device name, for example DF0:c/dir, and the volume name, such as Workbench:c/dir, are frequently interchangeable. If the disk in question is not in the drive when you issue a command, your command will most likely fail.

With removable-media drives, the distinction between the physical device and the volume name is important, because version 1.3 of the Amiga's operating system cannot distinguish removable media from floppy-disk drives. When powering up, you should make sure there is a cartridge in the drive—even if your Amiga does not boot from it.

When working with removable media, keep in mind that booting may take a little longer than with a fixed drive, because the system has to spin up. In addition, be sure to keep an eye on the drive's indicating light when ejecting or inserting cartridges. A blinking or steady red light means that the drive is not ready, whereas a steady green light is your signal to proceed.

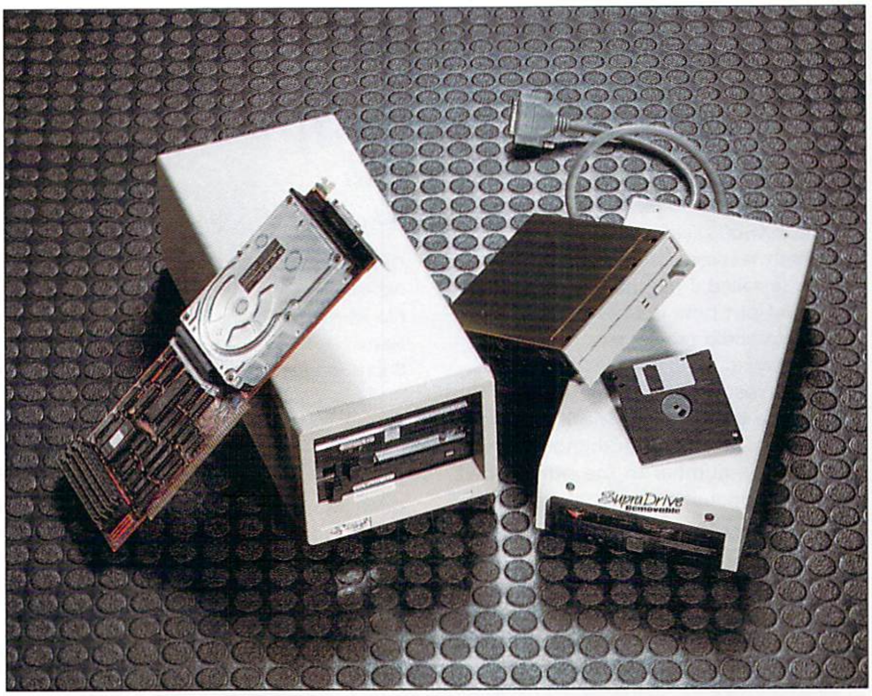
HardPack 44

The Syquest-based HardPack 44 ($599) is the upper half of Subsystem/SCSI from ***Advanced Storage Systems.*** Sidewinder 250, the lower half of the system, is an Archive 250MB streaming-tape drive. This review concentrates only on the Syquest part of the system. The system is housed in a 7×5½×16-inch fan-cooled enclosure that includes a built-in power supply. The power connector, on/off switch, and a pair of Centronics-type 50-pin SCSI connectors are all located on the back panel. You must open the case in order to change the SCSI device numbers of either unit.

The front panel has its own power LED beside the indicating lights on the Syquest and the Archive. A round, six-foot SCSI cable, with a DB25 connector at the computer end and a 50-pin connector at the other end, comes with the system.

I tested HardPack 44 with the Nexus SCSI host adapter for the A2000 from Advanced Storage Systems. The Nexus SCSI file-system software automatically senses when the Syquest cartridge is removed. Formatting and setting up a Syquest cartridge is the same as for any other SCSI hard drive connected to the SCSI bus. While each Syquest cartridge should have a unique volume name, the physical device name and the parti-

For information about the vendors of products reviewed, see the "Manufacturers'/Distributors' Addresses" list on p. 100.



Subbing for the absent Infinit 40, an Advanced Storage Systems' hardcard leans on the HardPack 44, while the GVP Ricoh rests against the SuperDrive Removable.

tion layout should be the same for all cartridges used with Syquest and Nexus host adapters.

Infinit 40

The Syquest based Infinit 40 ($899.95) is one of ***Interactive Video Systems***' entries in the removable-media sweepstakes. IVS offers and supports removable media systems based on both the Ricoh and Syquest drives. The unit I tested comes in a sturdy 10×3×11-inch metal, fan-cooled enclosure with a built-in power supply. The power connector, on/off switch, and two Centronics-type 50-pin SCSI connectors with retaining catches are all on the back panel. An eight-position DIP switch makes it easy to change the SCSI device number without opening the case. The front panel has its own power LED in addition to the indicating lights on the Syquest drive.

I tested the unit with IVS's Trumpcard Professional. (Note that there are two sets of DiskSpeed test results for the Trumpcard Professional. One represents the results from the default settings only, and the other is with the read/write cache turned on and with maximum cache size.) Due to the Trumpcard's rapid SCSI-bus transfer rates, IVS recommends you use a 50-conductor flat-ribbon cable to connect its SCSI peripherals. By separating each signal line with a ground line, the 50-conductor flat-ribbon SCSI bus can provide the necessary isolation and transmission characteristics. Formatting and setting up a Syquest cartridge is the same as for any other SCSI hard drive connected to the SCSI bus.

The Trumpcard's file-system software automatically senses changes in the Syquest cartridge. Its unique system also automatically assigns physical device names during boot-up. This lets the Trumpcard recognize Syquest cartridges without the same partition arrangement. When you install a cartridge with a new partition, the Trumpcard reserves the original physical device name and automatically assigns it to the replacement cartridge.

When you remove a cartridge that was in the drive when you powered up, the Workbench icon is replaced with DHx:BAD. The icon reverts to normal when you replace the original cartridge. Like with floppy disks, when you insert and remove subsequent cartridges, their icons appear and disappear. The Trumpcard's dynamic allocation of physical device names makes it the most flexible SCSI host adapter for removable-media use.

Ricoh/GVP

From ***Great Valley Products***, I received a raw Ricoh RH5500 removable media drive ($869) to install in the A2000's $5\frac{1}{4}$-inch drive bay, and I tested the unit with a GVP Impact Series II SCSI host adapter. The GVP SCSI file system also supports other removable-media devices, such as the Syquest, Iomega, and Bernoulli drives. The system automatically detects the cartridge's removal and changes its Workbench icon to "BAD." When you put a new disk in, it automatically recognizes it and shows you a new icon. You can use the Gvp-Mount utility to mount any cartridges not inserted at boot time.

SupraDrive 44R

The Supradrive 44R Syquest drive ($719.95) comes in a 7×3×14-inch metal enclosure with a built-in, fan-cooled power supply. The front panel includes both a power LED and a drive-busy LED in addition to the indicating lights on the drive itself. The power switch is located on the back panel, which also features a single DB25 SCSI connector and a permanently attached two-foot cable, terminating in a DB25 connector, for connecting to the computer's host adapter. The back panel also has a thumb-wheel switch that makes it easy to change the SCSI device number without opening the package. I tested the system with Supra's WordSync SCSI host adapter.

Supra's SCSI file system limits removable-media disk formatting to a single partition. According to Supra, this arrangement reduces the risk of losing data. You must install the SupraDiskChange utility to recognize disk changes. SupraDiskChange can run from the startup-sequence or after you boot the system. When you eject the cartridge, its icon shows up as DHx:BUSY.

THE CHOICE

The primary distinguishing characteristics among these prepackaged removable-media systems is in the SCSI host adapters. In fact, you can hook up any of these units to any Amiga host adapter that supports the specific removable-media drive in question. If you already own a host adapter, then you should add a compatible removable drive.

If you are starting out from square 1, consider a unified system—the advantage being that most developers will ►

Removable Media Speed Tests

To put our removable media subjects through the wringer, I used the venerable MKSoft DiskSpeed 3.1.

With Workbench 1.3 and its assorted files installed, I ran the first set of tests to find out how many kilobytes each system could create, read, and write in one second when using a 256K buffer.

The results appear in Table 1: The figure to the left of the slash represents results with only Workbench 1.3 running. The number to the right shows what happens in a multitasking environment. These are the results I got when I activated CPU (Central Processing Unit) stress—an option that repeatedly copies strings during disk activity—and introduced DMA (Direct Memory Access) contention, which simultaneously transfers information on the data bus.

Table 2 shows how many files the system could create, open and close, scan, delete, and seek/read in one second. As in Table 1, the first number indicates the results without DMA and CPU contention. The second figure shows you what happens with these extra demands.

In Table 3, the "real-world" tests, the first column indicates how long each system took to autoboot from a cold start with a generic Workbench 1.3 startup-sequence. The second column shows how long it took to build a new index on one field within a large database file using Superbase Professional 3.01 (Precision Software).

Table 1

Removable Drive	Create	Read	Write
GVP—Ricoh	226/177	367/359	368/283
IVS Infinit 40	233/222	442/425	406/380
IVS w/read/write cache	295/277	453/433	434/413
Nexus HardPack 44	268/266	506/483	326/333
SupraDrive Removable	232/238	430/425	427/417

Table 2

Removable Drive	Create	Open/Close	Dir Scan	Delete	Seek/Read
GVP—Ricoh	6/4	13/10	51/26	8/6	193/78
IVS Infinit 40	9/8	33/25	128/91	10/8	189/125
IVS w/read/write cache	27/20	55/38	161/102	22/18	195/125
Nexus HardPack	8/7	17/15	115/81	55/47	178/117
SupraDrive	9/9	27/25	133/95	15/15	194/130

Table 3

Removable Drive	Cold Boot	New Index
GVP—Ricoh	52.7	52.7
IVS Infinit 40	43.0	48.0
IVS w/read/write cache	----	----
Nexus HardPack	43.2	48.4
SupraDrive	58.0	43.8

format the supplied media. If you can manage the investment, removable media is a viable replacement for your overflowing hard disk.

Bodega Bay

Sitting in the dock of the bay.

By Sheldon Leemon

AS EVERY A500 owner can tell you, the A2000 is just an A500 with expansion slots. In theory, that means all you have to do to upgrade your A500 to A2000 capabilities is to add an expansion box with slots.

Unfortunately, the slot boxes we've seen in the past have fallen far short of ideal. Some were bulky cubes that, when plugged in, turned your demure A500 into a hulking, oddly shaped contraption with two external power supplies. Many had no Bridgeboard slots for IBM compatibility. Others came from small companies that could not afford to properly promote or support them. And most were only marginally compatible with existing A2000 expansion cards, working reliably with a select few cards, and not at all with others.

Watching the Tide Drift Away

In light of the problems associated with previous expansion boxes, it's gratifying to report that ***California Access*** has avoided all of the pitfalls mentioned above in designing the Bodega Bay ($429.95), the newest entry into the A500 expansion-box market. While you may not agree that trying to turn an A500 into an A2000 is a worthwhile project, you certainly cannot fault California Access for its execution of the concept. If the Bodega Bay isn't the perfect A500 expansion box, at least it is the best one we've seen so far.

Mechanically, the Bodega Bay is a large metal box that sits behind, and overhangs, the A500. Although it appears to rest on the A500 case, its free-standing structure does not exert pressure on the computer. The top and sides of the case are metal, while the faceplate is plastic—just like the A2000. On my test unit, several of the faceplate's screw posts snapped during shipping, and the plastic cover for the expansion connector had broken off. When I called the manufacturer, California Access offered me a replacement faceplate, and told me that the company has changed the packing material to better protect the plastic parts.

Installation is simply a matter of sliding your A500 under the box until you can plug the edge-card connector on its "foot" into your A500's expansion port. Once installed, the box leaves the right side of the computer exposed, providing easy access to the disk drive. It overhangs the back of the computer by several inches, however, making it difficult to connect cables to the rear ports. For this reason, you ►



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PSYGNOSIS

CIRCLE 62 ON READER SERVICE CARD

should attach your monitor, modem, printer, mouse, and joystick cables before you install the Bodega Bay.

One cable you won't have to worry about is the one leading to your external power supply. The Bodega Bay includes a hefty (200 watt) internal supply and cable that plugs directly into the A500 power connector, allowing you to dispense with the standard power brick.

A Bodega Bay/A500 combination is a couple of inches larger than an Amiga A2000 in each dimension (even the box the Bodega Bay comes in is larger than the A2000 box). While this gives it a somewhat bulky appearance, there really isn't much that California Access could do about it, given the size of Amiga expansion cards, and the necessity of leaving the A500 keyboard exposed.

Once attached, the Bodega Bay provides you with four Amiga 100-pin expansion slots, stacked horizontally along the left side of the box, A3000-style. The top three slots also contain in-line IBM AT-style expansion connectors, making them suitable for use as Bridgeboard slots. On the opposite side lie the power supply and drive bays. Accessible from the front of the box is a full-height, $5\frac{1}{4}$-inch drive bay that you can use for single, full-height devices such as large hard drives and optical disks, or for two half-height $5\frac{1}{4}$-inch devices like hard drives, tape-backup systems, CD-ROMs, or $5\frac{1}{4}$-inch floppy drives for Bridgeboard use. With an adapter plate, you can also install $3\frac{1}{2}$-inch hard or floppy drives in this bay.

In addition to the external bays, the Bodega Bay provides room for a single internal $3\frac{1}{2}$-inch drive, although the cramped space makes the installation process a bit tricky (the company told me that it is reworking later versions of the box to allow easier access). The Bodega Bay even provides an extra LED on the front of the case for monitoring internal drive activity.

Position Is Everything

Although the Bodega Bay provides ample room for additional drives, there are two considerations to keep in mind. First, the horizontal orientation of the slots makes it inadvisable to use a hard drive mounted on a SCSI controller card. Such an arrangement not only causes the drive to block access to one or more expansion slots, but it leaves the drive mounted upside-down, which may damage it. If you own a hardcard, however, it's a relatively easy task to detach the drive from the card, and move it to the internal bay.

The second consideration is that you cannot mount bare $3\frac{1}{2}$-inch floppy drives in the internal bays as additional AmigaDOS floppies. You can add more floppies to the A500 only by plugging them into the external floppy port, and for that, you need a small interface circuit board as well as the bare drive.

You can, however, install a dismantled California Access external floppy drive inside the Bodega Bay. The chassis provides holes for mounting the drive's pass-through jack and on-off switch. California Access advises against trying to install the drive without its upcoming optional mounting kit. Without it, it is possible to plug the interface board in the wrong way and destroy the drive mechanism. Califor-

Continued on p. 80.



All photographs are of actual DCTV screens.





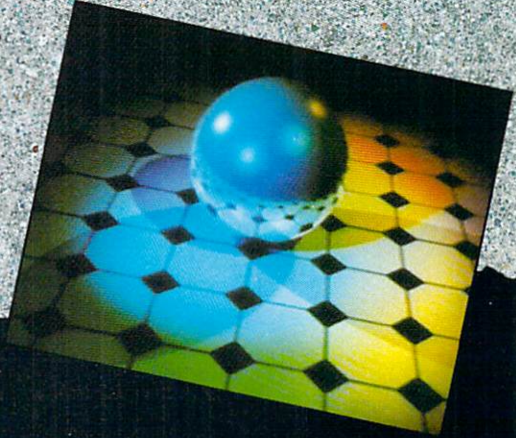
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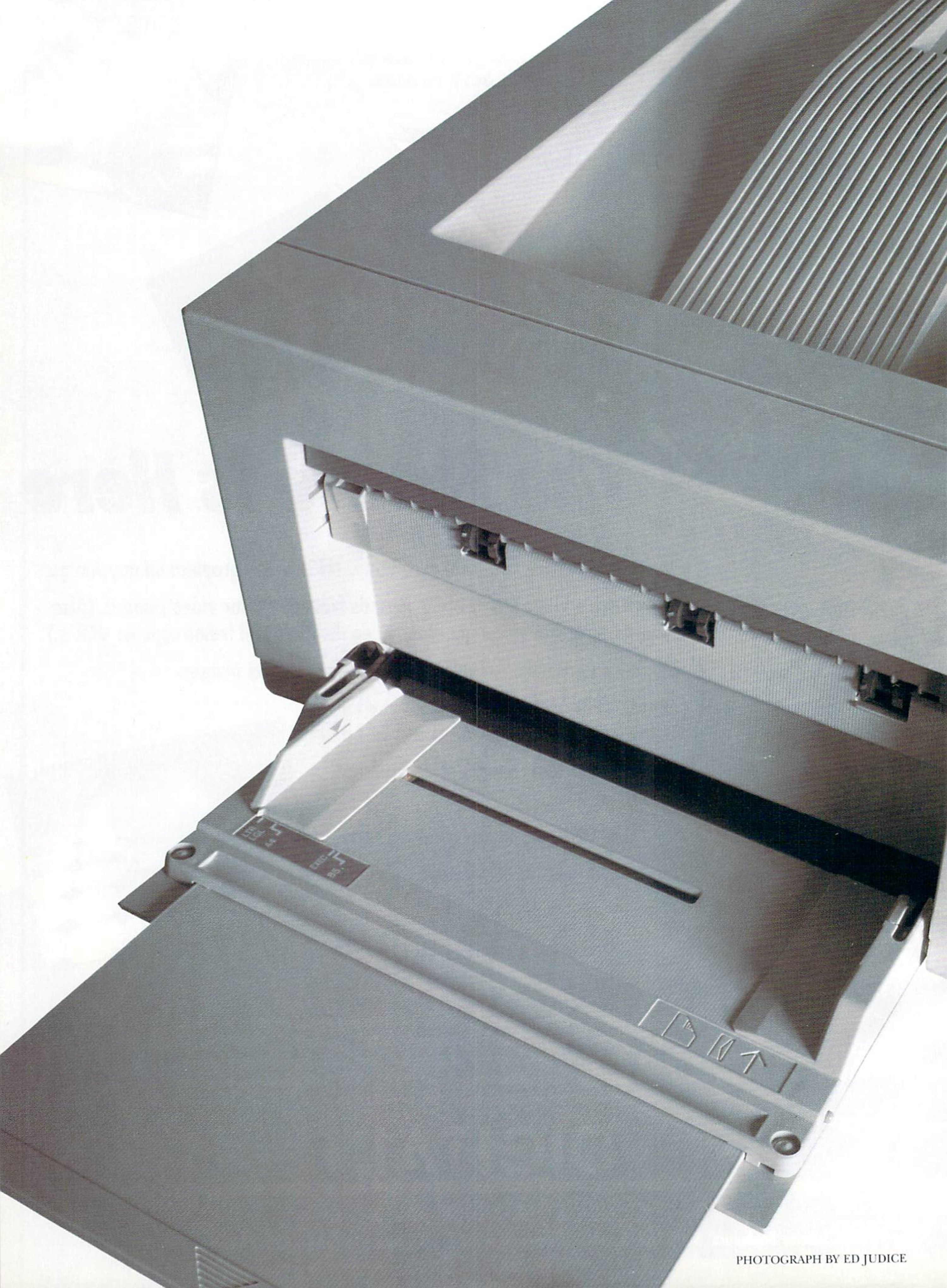
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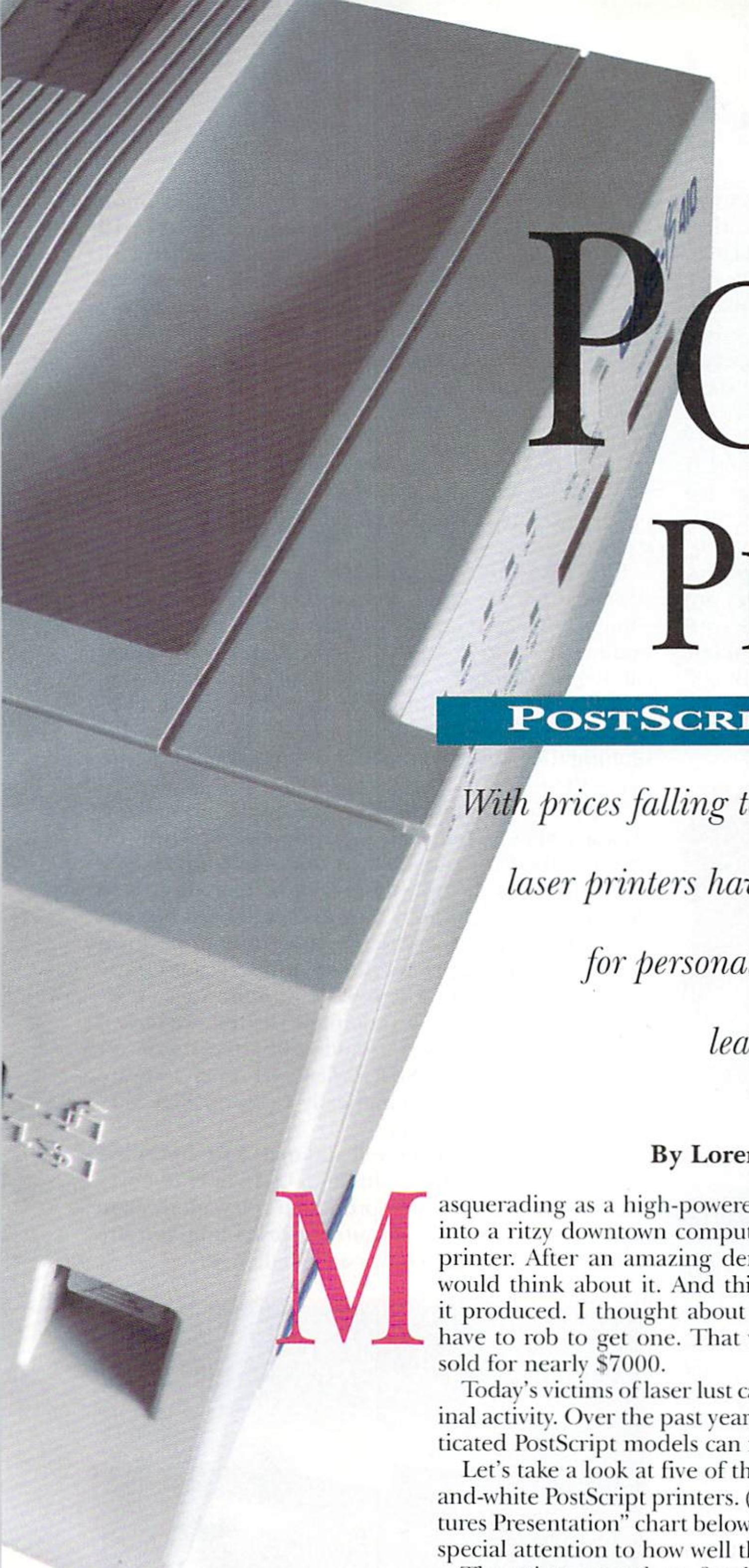
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AMIGA **OUTPUT-1**

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POSTSCRIPT LASER PRINTERS

With prices falling to the $1500–$2000 range, PostScript laser printers have finally become affordable enough for personal use. Let's compare five of the leading low-end models.

By Loren Lovhaug, with Frank Hudson

Masquerading as a high-powered business type with deep pockets, I strode confidently into a ritzy downtown computer store and requested audience with a PostScript laser printer. After an amazing demonstration, I thanked the salesperson and told her I would think about it. And think about it I did. I thought about the gorgeous pages it produced. I thought about its lightning speed. I thought about the bank I would have to rob to get one. That was five years ago, when even low-end PostScript lasers sold for nearly $7000.

Today's victims of laser lust can get the object of their desires without resorting to criminal activity. Over the past year laser printer prices have fallen dramatically, and sophisticated PostScript models can now be had for under $2000.

Let's take a look at five of the most popular and widely distributed sub-$2000 black-and-white PostScript printers. (For prices and specifications on each, check out the "Features Presentation" chart below.) Let's also examine the issues surrounding them, paying special attention to how well they work with the Amiga.

The printers we chose for this article come from reputable manufacturers who have well-defined service networks. Beyond this fact and their popularity, these five have several other similarities. All come with the latest versions of Adobe Systems' PostScript page-description language and the Hewlett Packard Printer Control Language (PCL). (See the sidebar "Why PostScript?") Each also includes at least 35 resident PostScript typefaces and comes with a minimum of 1.5MB RAM.

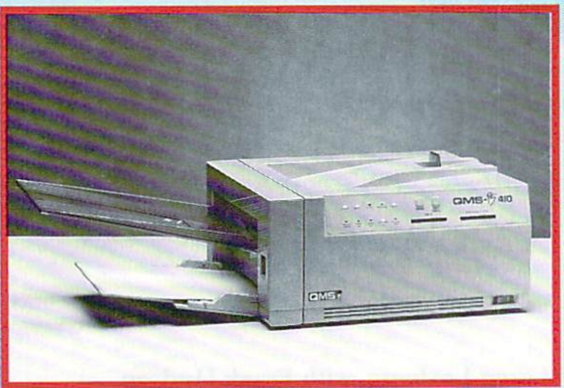
Except for the Apple Personal LaserWriter, you can connect any of these printers via parallel, serial, or AppleTalk ports (the LaserWriter omits a parallel option). Making a parallel or serial connection requires only an appropriate cable. To make an AppleTalk connection, you need an Amiga 2000 or 3000 and an AppleTalk interface card such as Progressive Peripherals' DoubleTalk or DigiFex's Interact.

The two most unexpected similarities among the printers are their output quality and their diminutive size. Unlike dot-matrix printers, which differ greatly in the quality of ►

their output, these are virtually the same in terms of output; any variance was imperceptible even with a magnifying glass. All deliver crisp, dark, flawless blacks, consistent grays, and curves as smooth as 300 dots per inch allow.

Perhaps more surprising are the bodies of the printers themselves. Laser printers have traditionally been heavy and bulky, requiring substantially more desk space than their dot-matrix cousins, but not these beauties. Each one is light and compact.

To find the differences in the printers, we looked at how easy each is to set up and use with the Amiga. We also considered the speed at which it churned out text, how well and how quickly it processed complex projects, and the difference made by a speedy microprocessor or engine. Finally, because laser printers are more expensive to operate than other printers, we considered the cost per printed page. For the results of our investigations, read on—and see the "PostScript Blitz!" test results. *(For details on how to contact the developers of products mentioned in this article, consult the "Manufacturers'/Distributors' Addresses" list on p. 100.)*



QMS PS-410

Without its paper tray, ***QMS***'s **PS-410** is slightly larger than the unit with the smallest footprint, Texas Instruments' microLaser PS-35. Measuring only 7.5 inches in height, however, the PS-410 is only about half as high as the microLaser, so it is a better "bookshelf" printer. With the 50-page paper tray unfolded (a rather skimpy capacity compared to the other printers), the unit measures 25 x 13 inches.

The PS-410's initial setup is the easiest of any of the printers. You merely open the front of the machine, drop in the all-in-one drum/toner cartridge, latch the front back up, and drop down the hinged panel that serves as the paper tray. It's all neat and quick.

The 410 is the only printer in the group to feature a 68020 processor. Although the 16 MHz '020 offers advantages for such calculation-intensive work as printing structured graphics, even that calculation speed could not overcome the 410's slower four-page-per minute engine. (Three of the other printers are rated at six pages per minute or better.)

Another aspect that sets the PS-410 apart is its extensive offering of typefaces; it provides 45 PostScript faces instead of the standard 35. Of these, we were unable to access Helvetica condensed or Garamond from any Amiga applications.

Unlike the other printers, the PS-410 has no buttons or LCD screen for switching between page-description languages or setting port preferences. Instead, the 410 employs a proprietary software technology called ESP that controls every aspect of the printer's operation. The best part of this scheme is that all three of the 410's connectors—serial, parallel, and AppleTalk—are available at all times. This means that you can hook up as many as three computers to it, each via a different port, and these computers can all send data to the printer simultaneously; ESP automatically queues up print requests. Switching between PCL and PostScript modes is also automatic; the printer indentifies which page-description language is needed from the incoming data string.

ESP's no-button approach is one of the 410's strongest points, but it poses a few problems for the Amiga. While QMS supplies a menu-driven utility program, PSExecutive, so that the Mac or MS-DOS user can toggle Wait and Sample Page settings, there is no Amiga version of the utility. It should be noted, however, that PSExecutive is merely a convenience for sending the printer commands written in machine-independent PostScript code.

Thanks to Consultron's CrossDOS file-format conversion utility, we were able to set these parameters. We read the PostScript commands from the 3.5-inch MS-DOS version of the utility and copied them directly to the PAR: device through the CLI. CrossDOS became even more important when it came time to perform our text test, as the printer did not properly auto-sense PostScript data from Micro-Systems Software's excellence! word processor. To complete the test, we locked the printer into PostScript mode using the PostScript command from the MS-DOS disk. All other software we tested switched automatically between PCL and PostScript without drama.

The ESP system works well and makes perfect sense for Mac and PC systems. Although QMS does not provide Amiga software, it has promise if you want to share a printer with other computers—providing you are willing to take on the conversion challenge.



OKIDATA OL840 LED PAGE PRINTER

In this field of small and smaller printers, ***Okidata***'s **OL840** is still in the big-and-tall section. It measures 17 x 23 inches with its paper tray, and stands 8.5 inches tall. Its solid construction, heavier base, and second paper-tray option make it the most durable printer we tested.

GETTING STARTED

Why PostScript?

KNOWING THAT EVEN the least expensive PostScript printers cost twice as much as low-end standard lasers, you might be wondering what's so great about the PostScript option.

Today there are two kinds of laser printers on the market, grouped according to which page-description language they use. A page-description language—such as PostScript—is the set of conventions that tell a laser printer's hardware how to render and position text and graphics on a printed page. Like the Amiga's Preferences system, the idea behind page-description languages is to give applications developers a standard method for accessing a printer's capabilities while minimizing the user's need to understand printer-control intricacies.

The least expensive laser printers generally use a version of Hewlett Packard's page-description language, called Printer Control Language (PCL). Such printers are said to be HP or PCL compatible. Today, PCL-based printers come equipped with a minimum of 512K of RAM and two fonts, although many HP-compatible printers are sold with more memory and a larger complement of built-in fonts. Most PCL printers use a microprocessor in the same class as the A500's 7.16 MHz 68000.

The other popular printer-control language is Adobe Systems' PostScript. Modern PostScript laser printers usually have at least 1.5MB of RAM and 17 fully scalable typefaces. When it comes to computing power, PostScript printers generally use faster microprocessors than their PCL counterparts.

Because PostScript printers have more under the hood than do PCL units, they cost more to produce. Further, because PostScript is a more complex and powerful language than PCL, it begs for more memory and processing muscle. PCL supports only two scalable graphics primitives—namely, horizontal and vertical rule—that you can color effectively only in 5% intervals from white to black. This means that the sole way to print a complex image with PCL is to send its bitmapped representation to the printer, a slow and disappointing process.

On the other hand, PostScript includes a rich array of graphics primitives, including bezier curves, arcs, and lines, all of which you can rotate and scale. In addition, PostScript includes an advanced, pattern-based flood-fill facility that can shade even irregularly shaped objects in .1% increments.

PostScript also surpasses PCL in the way it handles text. To appreciate PostScript's superiority in this area, it is important to understand the difference between two terms that are often confused: typeface and font. A typeface is a particular design or style of letters, numbers, and symbols, while a font is the actual set of letters, numbers, and symbols for a typeface in a specific size.

For example, the Amiga's default typeface, Topaz, is available in three sizes, each of which is a font. One Topaz font features characters eight pixels high, whereas the other two are nine and 11 pixels in height. Similarly, a PCL printer provides fonts that are specific sizes of particular typefaces.

Unlike PCL, PostScript is actually typeface-based and can build virtually any size font from typeface-outline information stored within the printer. This means that PostScript printers can produce an almost infinite number of fonts for each typeface—the only limits are your printer's RAM and its print resolution.

While the distinction between font and typeface may seem trivial at first, it is crucial. Many advertisers use the word font instead of typeface when describing the number of typefaces resident in a PostScript printer. Therefore, uninformed buyers may wrongly conclude that a PCL-based laser printer with 30 resident fonts has more text flexibility than a PostScript laser printer with 17 typefaces advertised as having 17 resident fonts.

Besides the fact that PostScript printers are superior for graphics and text handling, some practical considerations make them a better choice than PCL printers for Amiga owners. First, PostScript is a device-independent standard. The same PostScript output you send to a PostScript laser can also be sent to a professional imagesetter, such as the one that prints this magazine at 2540 dots per inch. This makes a PostScript printer a fine proofing device, even if you are going to output your pages to film via an imagesetter. Finally, although Amiga laser-printer support is somewhat weak and Preferences does not include a PostScript driver (see the sidebar "Amiga Software and Lasers"), Amiga software supports PostScript better than PCL. □

A particularly admirable feature is the 840's ability to accept additional PostScript fonts on credit-card sized ROM boards. Unfortunately, however we were unable to get any Amiga applications to recognize these fonts.

The OL840 is the only one of this bunch that is technically not a laser printer. Its imaging process actually uses an array of LED panels. We could find no difference, however, in density of blacks and sharpness of output.

The OL840's set-up process is a little more complex than average. The drum and toner units are separate, and the toner cartridge spilled a few smudges during installation. Control of the port, the page-description languages, and the miscellaneous settings is handled by an array of soft-touch buttons on the printer's front panel. As with most of the other printers, an LCD panel indicates printer status and set-up choices. As the only eight-page-per-minute printer in this test, the 840 runs multiple-copy prints and other such tasks more quickly.

Our tests show that there is more to a printer's speed than its engine's page-per-minute rating. Still, if you intend to use your PostScript printer as a make-shift ►

photocopier to roll out multiple copies of documents, the OL840 might top your list.

Small points aside, the NEC turned in mighty fine performance figures and comes at an attractive price.



NEC Silentwriter 2 Model 90

In terms of size, ***NEC*'s Silentwriter 2 Model 90** sits in the middle of this pack. Its irregular shape (measuring 18x25x8) makes it look somewhat like a cozy cabin with a large deck, the deck being its paper tray. The tray's ungainly length results from its ability to hold legal-size paper; most printers require you to buy an additional tray for 14-inch pages.

The tray, surprisingly, is the trickiest part of the Silentwriter's otherwise easy setup. The combined toner/drum cartridge drops in under the printer's hood, but adding the tray is a matter of finding two elusive metal pins that fit into a pair of plastic hooks. Although the assembled unit looks fragile, it has stood up well under extended use.

A small LCD window and some miniature buttons control such user-configuration settings as hardware port, page-description language, and wait preferences. If you plan to switch often between PCL and PostScript, you may quite possibly be annoyed that there is no constantly visible indication of which mode is selected, a nicety that Okidata's OL840 includes and the QMS' PS-410 does not need.



Texas Instruments microLaser PS-35

***Texas Instruments*' microLaser PS-35** is the smallest (13x14x11) of the five printers, but involves the most difficult set-up procedure. It employs a three-piece consumable system, including separate toner and developer units and OPC drum (which fuses the toner). The complexity of three separate units, combined with the printer's small size and vertical orientation, means spending a few more minutes under the hood initially. Both the developer and the OPC drum have extremely long life spans, however, so once they are installed, you can forget about them for a long time.

This three-piece arrangement is somewhat deceptive. It makes the PS-35 appear to challenge the Okidata 840 as the costliest printer to operate, as the Features Presentation chart shows. Considering that both your initial developer unit and OPC drum are supplied with the printer, however, the PS-35 is considerably cheaper to operate than the others for the first 25,000 pages or so.

The PS-35 has a few unique features. Like Okidata, Texas Instruments sells credit-card size cartridges to ►

Features Presentation

Printer	Base Prices: List/Retail Ranges	Memory: Base/Max	Processor	Engine/Speed	Consumables Item/Copies/Price	Consumable Cost/copy (¢)	Tray Capacity
QMS PS-410	$2795/$1850–$2150	2MB/6MB	68020 16 MHz	Cannon LX/4ppm	OPC Drum/3500/$99	2.8	50 sheets
Okidata OL840	$2995/$1850–$2050	2MB/4MB	68000 12 MHz	Okidata/8ppm	Toner/2500/$33 OPC Drum/15000/$289	3.2	200 sheets
NEC Silentwriter 2 Model 90	$2499/$1500–$1700	2MB/4MB	68000 16 MHz	Minolta/6ppm	OPC Drum/8000/$240	3.0	250 sheets
TI microLaser PS-35	$2849/$1500–$1700	1.5MB/4.5MB	68000 12 MHz	Sharp/6ppm	Toner/3000/$69 Developer/25000/$130 OPC Drum/40000/$160	3.2	250 sheets
Apple Personal LaserWriter NT	$2599/$1850–2300	2MB/8MB	68000	Cannon LX/4ppm	OPC Drum/3500/$99	2.8	250 sheets

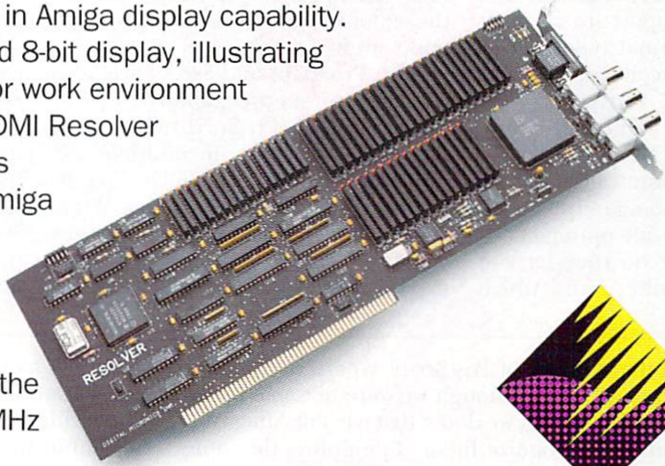


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Amiga Software and Lasers

DESPITE THE AMIGA'S prowess as a graphics computer, it lags behind other systems in its support for high-quality printing using either PCL- or PostScript-based laser printers.

What are the problem areas of Amiga laser-printer support? Laser printers often come with a complement of high-quality resident typefaces. Because Preferences handles text in terms of pitch (characters per inch, measured horizontally), the HP Laser Preferences driver and most Amiga software cannot easily or accurately use most of the fonts resident in PCL printers—except for the monospaced Courier fonts. This may be adequate if you wish to use laser printers as big, fast, quiet typewriters. Most laser-printer owners, however, want proportional typefaces—even for routine business letters.

Only one nondesktop-publishing product gives you passable access to and control over resident PCL proportional fonts—WordPerfect, from WordPerfect Corporation. However, this program's use of character-based measurement rather than absolute measurement makes its support somewhat laborious.

Text control for PostScript lasers on the Amiga is somewhat better than for PCL printers. Because Commodore does not supply a PostScript printer driver, this superiority is wholly attibutable to third-party software. You can find limited support for resident PostScript proportional typefaces in WordPerfect and excellence! (Micro-Systems Software). ProWrite (New Horizons) needs an add-on program, ProScript (also from New Horizons).

While these programs allow you to do basic word-processing output using PostScript, none provide optimal PostScript support; nor do they let you scale typefaces to other sizes, which makes it impossible to print in any but specific sizes of a given typeface. WordPerfect, for instance, includes a separate printer driver for each of the typefaces most commonly found in Post-Script printers. Unfortunately, however, this scheme does not allow you to mix different typefaces in the same document.

Although each of these WordPerfect drivers lets you access up to eight sizes of the designated typeface, WordPerfect does not automatically adjust line leading and margins to accommodate your proportional fonts. This means you must calculate the appropriate leading and margin settings, and tell WordPerfect to adjust them in terms of lines per inch and characters per inch for each font change.

The developers of both ProScript and excellence! provide a limited number of Amiga screen fonts and font metric information for specific typeface sizes. (If you own Professional Page from Gold Disk, you can use its font metric screen-font information to add more resident font support.) Using this approach, both of these products provide a fairly good on-screen approximation of what your printed page will look like. Although you are limited to only a few sizes for each typeface, you can freely mix typefaces within a document. In addition, they save you from the tedious chore of calculating leading and margins.

Both ProScript and excellence! also provide a limited capability to print IFF graphics. ProScript, however, proved unable to print multiple-column documents, and it choked on other forms of complex formatting. While excellence! did not exhibit problems with text formatting, we did notice one disturbing anomaly. In the name of "truly accurate on-screen display," excellence! appears to stretch the character widths of every PostScript font so that it matches the 4:3 ratio of the Amiga's screen display.

What if you need additional typefaces? The least expensive way to add them to a printer is to use "downloadable fonts." These are fonts that reside on your disk drive and are transferred to the printer's memory when needed for a print job.

Though both the PCL and PostScript worlds are well supplied with downloadable fonts from a variety of sources (including public domain), Amiga support for downloadable PCL fonts is virtually nonexistent. The PostScript situation is just slightly better; only one Amiga desktop-publishing package, PageStream (Soft-Logik), fluently accesses a wide variety of downloadable PostScript fonts, thus allowing for literally hundreds of typefaces.

Thankfully, PageStream, Saxon Publisher (Saxon Industries), and Professional Page all provide first-rate support for the PostScript language. They allow the Amiga to easily manage the features of PostScript printers, so you get precise control and layout flexibility.

Structured-drawing programs like Professional Draw (Gold Disk) and ProVector (Taliesin) equally support both types of laser printers, but for those who use art created on other systems, a variation of the PostScript printer-control language, Encapsulated PostScript (EPS), is much more useful. EPS graphics import nicely into Amiga desktop-publishing programs. Because they use PostScript instructions to draw, EPS graphics print correctly only on PostScript printers. Also, EPS graphics print faster than structured-graphics output to PCL printers. □

expand the number of PostScript typefaces available for the microLaser. Although we were not able to obtain a card for testing, we doubt that current Amiga applications can recognize them; TI employs the same technology for its cards as does Okidata.

Another twist is that TI offers this same machine in two other configurations. The microLaser is a PCL-only printer that sells for less than $1000; the microLaser PS-17 is a 17-PostScript-typeface version that sells for about $200 less than the PS-35. You can upgrade either of these lesser models to the level of the PS-35, although the combined cost of the upgrade boards will increase the final price of your printer to slightly more than the price of the PS-35.

Although the PS-35 comes with a printed manual, TI provides a complete on-line help system that you can dump from the printer's ROM. Controlling the help system and every other aspect of the PS-35 are the obligatory front-panel buttons and LCD display.

The PS-35 performed well in our Text Test and Light Publishing Test, but it failed our Torture Test—probably because it comes equipped with only 1.5MB of memory as opposed to the 2MB of the other printers. Given that the elements of our Torture Test are derived from real-world projects, we recommend that you consider adding memory if you buy the PS-35. ►



The Evolution of Publishing: PageStream 2.2

AmigaWorld called PageStream 2 the "Amiga desktop publishing king of the hill." Amiga User International named it the "heavyweight champion." But we weren't satisfied. We wanted to create the most advanced publishing system for any computer, so we added a new interface, HotLinks, and a host of new features to create PageStream 2.2. HotLinks lets text, graphics and publishing applications talk to each other in real time, on one computer and across networks. So, instead of spending time importing text and graphics, you can spend more time being creative. PageStream 2.2: The evolution of publishing is complete.

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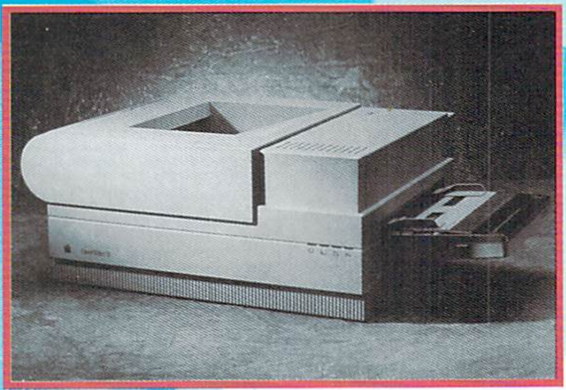
For the desktop-publishing Torture Test, we used a four-page document produced with PageStream 2.1 (Soft-Logik). The document combines scanned IFF images, Adobe Type 1 soft typefaces, EPS (Encapsulated PostScript) graphics, PageStream and Pro Draw (Gold Disk) structured drawings, and gray-scale objects.

The Text Test is a 4.5-page excellence! 2.0 (Micro-Systems Software) document containing text in a mixture of resident PostScript typefaces. Finally, the Light Publishing Test was done with Professional Page 2.0 (Gold Disk), using Gold Disk's sample New Laser Times document, a two-page file with resident PostScript typefaces and Pro Draw structured graphics.

For each test, we recorded the time it took for the application to finish processing the print job (these times are listed under the Application Free column) and also how long it took for the printer actually to generate the pages (the Page Out column). After each test, we turned off the printer to clear its memory before proceeding.

Except for tests on the Apple Personal LaserWriter NT, we ran our trials from within the applications, with the printers connected to the A3000 via the parallel port. Tests on Apple's Personal LaserWriter NT were performed using the Amiga's serial port at 9600 baud. □

	Torture Test		Text Test		Light Publishing Test	
	Application Free	Page Out	Application Free	Page Out	Application Free	Page Out
QMS PS-410	29:24	29:52	1:00	1:46	1:59	2:28
Okidata OL840	20:30	20:35	1:14	1:33	2:10	2:18
NEC Silentwriter 2 Model 90	18:10	18:49	1:10	1:43	1:52	2:15
TI microLaser PS-35	fail	fail	0:56	1:15	1:56	2:12
Apple Personal LaserWriter NT	39:27	40:17	3:04	3:51	4:11	4:56



Apple Personal LaserWriter NT

Of the five printers we tested, ***Apple***'s **Personal LaserWriter NT** is the only one we cannot recommend to Amiga owners, primarily because it does not offer parallel communications ability, the standard method by which printers interface to the Amiga. Unless you happen to have an AppleTalk card, this means that your only choice for connecting the LaserWriter NT to your Amiga is via its serial port (or a multiserial card) at 9600 baud. This method of connection to the NT is considerably slower than the parallel connector we used to test the other printers.

Another nagging aspect of the Personal LaserWriter is the way in which you change emulation modes. On the rear of the printer is a push-wheel with seven numbered settings. There is no indication on the printer as to which setting does what, and there is no LCD panel to convey this and other status information. You are forced to consult the printer's manual in order to switch emulation modes.

The last strike against the LaserWriter NT is its easy-to-install but terribly slow four-page-per-minute engine—the same one that drags down the QMS. Add to this the fact that its advertised price is consistently higher than the others, and it is not hard to understand our dismissal of this machine.

There are really four winners in this contest. The one you pick will depend on several criteria, not the least of which is price. Be sure to shop around, because prices differ greatly. Be sure also to watch for new developments in the printer industry; at press time we got word of a PostScript laser printer from Star Micronics that carries a sub-$2000 retail price. That probably translates to a street price of $1500 or less. (See this issue's "Overscan" for more details on the new arrival.)

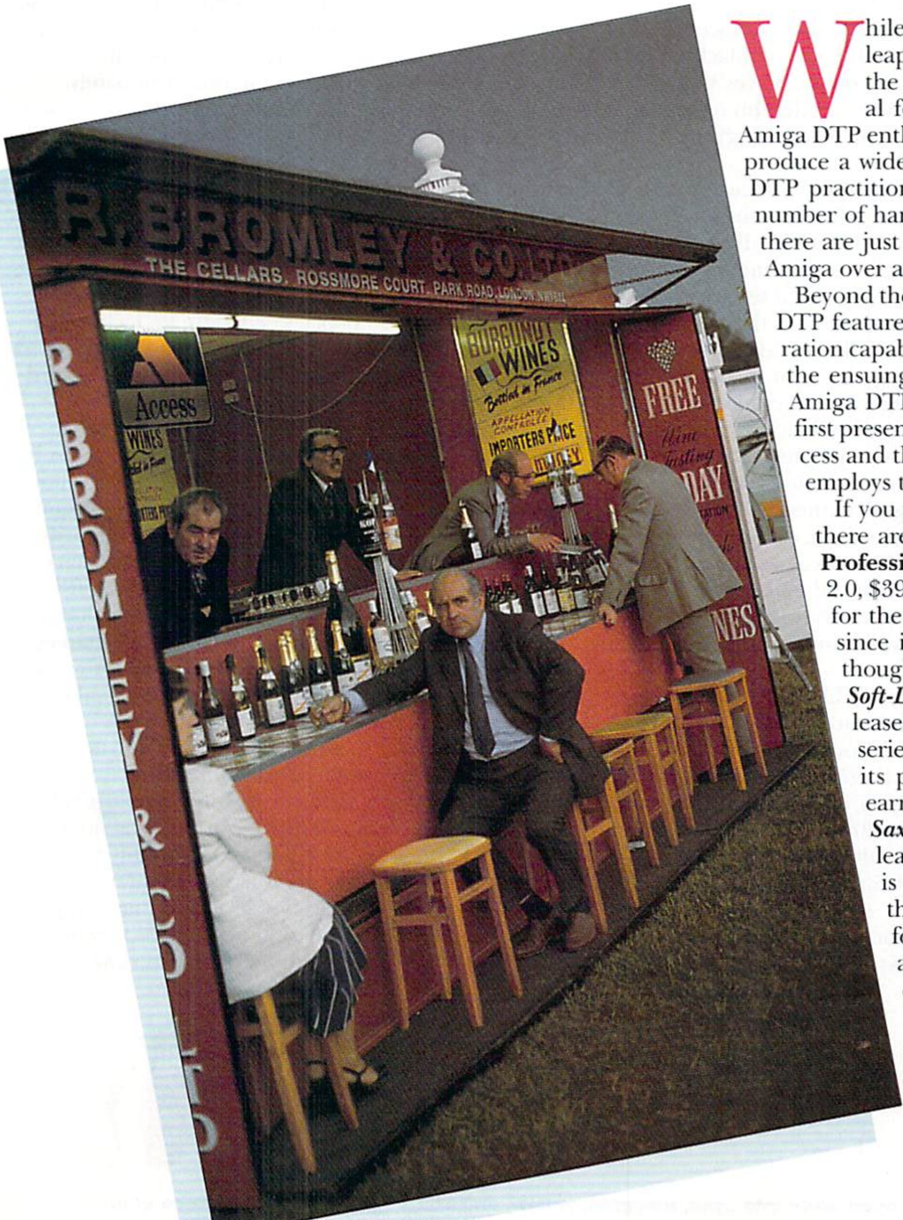
Chicken Little was right... the sky is falling! ■

Loren Lovhaug has taught and written about computers since 1984, and has been a sysop for several commercial BBSs. Frank Hudson, who writes and edits on the Amiga, works with Loren for Voyager Mindtools in Minneapolis.

SEPARATING

THE DTP PACK

Step up to the bar and see how three leading Amiga desktop-publishing programs handle your order when it comes to color separations.



While "Amiga" may not be the first word that leaps to everyone's mind when you mention the term "desktop publishing," there is a loyal following (which is steadily growing) of Amiga DTP enthusiasts using a solid core of programs to produce a wide variety of publications. As a long-time DTP practitioner, I do acknowledge that there are a number of handicaps to publishing on the Amiga, but there are just as many reasons why I prefer using the Amiga over any other machine.

Beyond the basics of layout, font support, and other DTP features, key considerations are the color-separation capabilities of your program and the quality of the ensuing output. In evaluating how successfully Amiga DTP programs perform this function, I will first present an overview of the color-separation process and then examine the methods each program employs to get the job done.

If you wish to desktop publish on your Amiga, there are three programs from which to choose. **Professional Page** from ***Gold Disk*** (latest release 2.0, $395) was the first serious publishing package for the Amiga, and it has been a solid program since its inception almost four years ago. Although its early versions had many problems, ***Soft-Logik Publishing***'s **PageStream** (latest release 2.1, $299.95) has grown through a long series of updates and revisions to a point where its present features and capabilities have earned it a significant position in the market. ***Saxon Industries***' **Saxon Publisher** (latest release 1.1, $360; note that a new, 1.2 release is expected by the time this appears—see the "Editor's Note" at the end of this article for details) is the new kid on the block, and although its unorthodox interface is difficult to master, it is capable of some stunning color separation results.

It is not my intention here to tell you which of these programs is the finest Amiga DTP package; instead, I will try ►

By Eyo Sama

to show you how to obtain the best color-separation results with the program that you have. Color-separation results, of course, must be weighed against other features and capabilities of DTP programs—and the three packages examined here are distinctly different when it comes to these areas, too. Therefore, in my conclusion I will try to put such results in the larger perspective of the overall strengths and weaknesses of each individual program. *(To contact the developers of these and other products mentioned, consult the "Manufacturers'/Distributors' Addresses" list on p. 100.)*

Color Separation Basics

On computer screens, color is represented as levels of red, green, and blue (RGB). Full amounts of all three colors will give you white, while zero levels for all three will produce black. This is called the additive color model. On paper, however, the subtractive (or reflective) color model applies, which is directly opposite to the additive model. With printed output on paper, color is represented by the amounts of cyan, magenta, and yellow ink (CMY) present. Unlike the RGB scheme, full amounts of the three inks will give you black (at least in theory), while no ink, of course, leaves you with a blank white page. With either model, however, equal amounts of the three colors involved will give you various levels of gray.

Color separation on a computer is the process of converting text and images defined in the RGB color model into the CMY colors used for offset printing. The cyan, magenta, and yellow components of a page of text and images are usually printed separately, each onto its own piece of negative film. In theory, 100% of cyan, magenta, and yellow ink should produce pure black; in practice, though, it does not. Because of impurities, mainly in the magenta and cyan inks, the result is a muddy brown instead of black.

Magenta ink is usually contaminated with about 50% yellow, while cyan ink is contaminated with about 30% magenta. Grays, which (again in theory) are composed of equal amounts of the three inks, can also be slightly off because of these impurities. Two processes are used to counteract this phenomenon: *under color removal* (UCR), which is used to generate a fourth (black) film, and *color correction*, which makes adjustments for impurities in the inks.

With under color removal, black ink can be used wherever all three other inks are found. For example, if you have a filled circle composed of 20% cyan, 40% magenta, and 60% yellow, there is 20% of ink common to all three; therefore, you can remove this same amount from each ink. The 20% gray that was removed is then added to the black film. The resulting separation consists of 0% cyan, 20% magenta, 40% yellow, and 20% black.

There are several additional benefits involved in this process: Black ink is less expensive than other ink (and less ink is used, too); there is also less total ink coverage during printing (and, therefore, less chance of smearing); and it is possible to achieve higher contrast in scanned images. In practice, you do not remove the full amount of color, because this can lead to trapping and registration problems. (Registration is the alignment of each of the four pieces of film with respect to each other.) Misaligned film can cause a thin white line to appear where there is a transition between two colors. Typically, you remove only 50% of the underlying color. With 50% UCR in the example above, the resulting separation is composed of 10% cyan, 30% magenta, 50% yellow, and 10% black.

Another related process, called *gray component replacement* (GCR), allows you to vary the amount of the black that is replaced. Again using the example above, 100% GCR produces 20% gray on the black film, while 75% GCR produces 15% black.

Using color correction, it is possible to offset the impurities of the inks by removing amounts equal to the impurity. Because magenta is contaminated with yellow, you would thus reduce the amount of yellow ink; similarly, as cyan is tainted with magenta, you would also reduce the amount of magenta ink proportionately.

Of the three programs under consideration, only Professional Page allows you to manipulate the UCR/GCR settings beyond the program-specified default settings (which are 50% for UCR and 100% for GCR). In Pro Page's case, being able to decrease the GCR setting partially compensates for what I see as a problem with that program's color separations, namely, that they often result in images that seem "washed out" because the colors are not bright enough. Reducing GCR, unfortunately, also causes darker colors and blacks to appear less solid. It is best to vary the settings according to the type of images you are separating.

For structured graphics, you can even opt to switch off the UCR/GCR process altogether, which proves to be quite useful in some applications, because it then allows you to specify the black percentage directly. Professional Page does automatically color-correct for ink impurities, but here you cannot modify the default settings. You can switch the feature off, however, by typing Alt-Shift-C.

Although PageStream does not allow you to alter any of these settings beyond the defaults, it still manages to produce fairly good separations. Colors, however, are not terribly accurate and, as with Professional Page, they tend to appear somewhat washed out.

A similar situation exists with Saxon Publisher. You cannot modify its UCR/GCRdefault settings. It is my experience, however, that with Saxon's patent-pending color-separation system, APEX, you really do not need to. Instead, the program allows you to modify the level of impurities in the inks used by your printer. You can also modify the cyan saturation level and thus compensate for the low saturation of some batches of cyan ink. Be careful with this setting, however, for too low a value ►



When an image is color-separated, it is broken down into cyan, magenta, yellow, and black—each on its own piece of film.

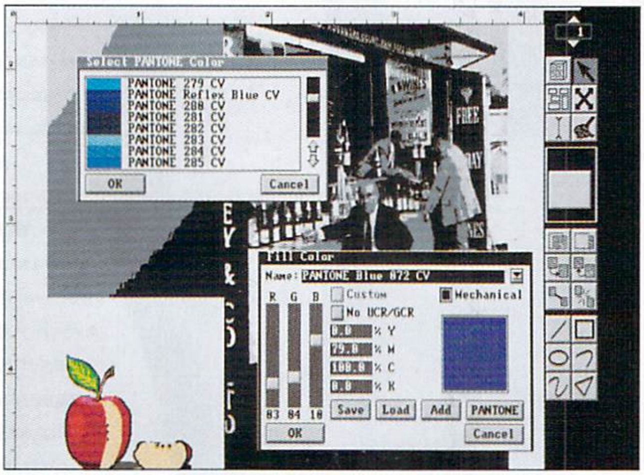


Circle 57 on Reader Service card.

will give you output that looks too blue. If you can work within this context, you will find that Saxon Publisher separations have bright, well-saturated colors and good contrast.

It's a Match!...Or Is It?

Whether you attempt to specify color on your desktop system as different levels of red, green, and blue (RGB),



Pro Page is the only program that supports the Pantone Matching System (PMS) color-definition system.

or as levels of cyan, magenta, yellow, and black (CMYK), your basic problem in either case is that you hardly ever manage to get in print what you see on your screen. That is why there are a number of color-definition systems to help you.

One of the more popular is the Pantone Matching System (PMS). The PMS library consists of more than 700 numbered color inks commonly used in the printing industry. *The Pantone Color Formula Guide* (Pantone Inc.) contains sample patches of all the Pantone colors, on both coated and uncoated paper stock. This book is invaluable to any serious desktop publisher, because it allows you to better predict the colors that will appear on your final product. You will also find that just about every client who wants specific colors for his or her project will request them as numbers from the Pantone book. You can obtain the Pantone guide from most art supply stores or directly from Pantone.

You can use the Pantone colors in one of two ways: Specify the colors as being mechanical (where the printer uses the actual Pantone inks you request), or use a CMYK process-color equivalent to estimate the color of the actual Pantone ink.

When producing a mechanical (spot-color) separation, you specify text and structured graphics as being of a specific color, previously defined as being mechanical, or a percentage shade thereof. When this separation is output to film, the colors are not translated into CMYK equivalents; instead, each mechanical color (and its shades) is printed on its own individual film. The printer then uses the specified Pantone ink to print each film to paper on an offset printing press.

The benefit of using this method is that you are assured that the colors that appear on your final product are the same as those you selected from your Pantone book. On the other hand, this method requires that you create a separate piece of film for each mechanical color used on your page layout, which can become rather expensive when you need more than four colors. Also, scanned color photographs and other bitmapped images cannot be mechanically color separated because each image may consist of anywhere from several dozen to several million colors.

The other way of color separating Pantone colors is to define them as being "process colors," i.e., as levels of CMYK. The advantage here is that you can use as many Pantone (or other) colors as you wish—including those from scanned images—all of which can be separated onto just four pieces of film. On the surface, it would seem that there is no reason to separate in any other way, but, unfortunately, the process-color (CMYK) equivalents of Pantone inks do not all match the actual inks.

The following example will explain the reason for this. Printers create the color Pantone 374 by mixing three parts Pantone yellow ink, one part Pantone green, and twelve parts Pantone white. The process-color equivalent of Pantone 374, however, is 23% cyan, 0% magenta, 59.9% yellow, and 0% black. A circle of color printed with the actual Pantone 374 ink consists of 100% coverage of that one ink, while printing it in four-color process will produce a halftone pattern comprised of the percentages of CMYK mentioned above. Pantone 374 is a yellowish light-green color, but in process it looks very different from the color patch found in the Pantone book.

There are two things, however, that you can do to improve your final product. First, you can print a mixture of process and mechanical. For example, if you still have a copy of the 1986 Nov./Dec. issue of *AmigaWorld*, you will notice that the customary color splash under the word "World" is in silver. That particular cover was printed as a five-color separation, consisting of the four process inks, CMYK, plus the fifth color, silver ink. Using a fifth or even sixth color in this manner allows you to add colors to your layout that otherwise would be difficult or even impossible to estimate using the four process colors.

The other way to improve your final product is to use *The Pantone Process Color Imaging Guide* (Pantone Inc.), which shows the same color patches found in the Formula Guide, but which also includes next to each of the Pantone patches another patch displaying its process-color equivalent. This gives you a much better idea of what to expect when you specify colors selected from *The Pantone Color Formula Guide* or from within your publishing software.

Professional Page 2.0 is the only one of our three programs that directly supports the Pantone Matching System, and it is also the only one to adequately display color on the Amiga screen. You can display on screen any color defined by you or that is part of the built-in Pantone Library. The color-dithering routines Professional Page uses give you the appearance of thousands of on-screen colors. To print a Pantone color as its process equivalent, simply switch off the "mechanical" button for that specific color within the Professional Page Color requester.

Personally, I would like Professional Page to display the actual color as well as its dithered version when I use the Color requester, because it is sometimes difficult to visualize what the color really looks like. When you do use mechanical colors, Professional Page allows ►

you to define tints (or shades) of these colors merely by specifying a percentage after the color name (for instance, Pantone 374 CV 50%). The tints are then placed onto the same piece of film as the defined mechanical color.

Unfortunately, there is no direct way of doing this with the other two programs. PageStream does not directly support the Pantone system, but it does allow you to define colors in several ways, ranging from RGB and CMYK to the YIQ (Yield, Intensity, Quadriture) scheme used in video systems. For on-screen color representation, PageStream tries to match the actual colors you define to the colors used in its palette. This system is cumbersome and error prone, and the graphics you load into the program rarely appear the way they were meant to look. I hope that in a future release Soft-Logik opts for on-screen color dithering.

Saxon Publisher does dither its on-screen colors, but the algorithms it uses seem to create on-screen "moiré" (interference) patterns that are sometimes disturbing. Still, this is a better system than matching a limited color palette to your actual colors as PageStream does.

Put It Over...Then Put It Out

When you are designing a page containing images (or other elements) that spread all the way to the edge of the page, you must take into account that when a printer puts your job on press, or when he or she cuts your product to the desired size, you will be guaranteed an accuracy of only ± 1/8 inch. For example, if you are designing an 8.5x11 flyer that will have a red background from edge to edge when printed, and you define your page size to be exactly 8.5x11, the chances are that you will see the white of your paper appearing on at least one of your page borders.

To avoid this, you must "bleed" the page, which in the example above means you must add 1/8 inch or more to all your borders by defining a page size of, say, 9.0x11.5. You then spread any graphic elements or background to the size of the enlarged page. The new page size adds a quarter of an inch to both dimensions of your page, so that even the worst of printers will have a hard time messing up this aspect of your job.

PageStream offers the most elegant method of handling bleed pages. Using the Set Page Dimensions requester, you can define the bleed size, which appears as a gray area around your page. You can now bleed graphics, text, and other objects off the page so that they do not disappear during printing or trimming. This feature is very well implemented in PageStream and makes designing and visualizing bleed pages much easier than with the other two programs.

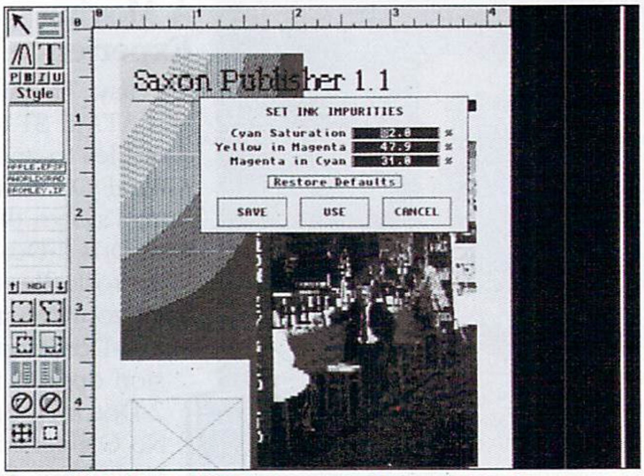
Color separating your page layout to film requires the services of an imagesetter, and all three programs under consideration can print to such devices. There is simply not enough space in this article to convey the many tips, tricks, and tribulations involved in operating an imagesetter, so I will limit the discussion to just a few important considerations.

To ensure that your imagesetter produces good color separations, you should use a densitometer for calibration. A densitometer measures the density of your film, and some also measure halftones, thus allowing you to make sure that the 50% gray you selected in your software is actually reproduced as 50% by your imagesetter. At present, Professional Page 2.0 is the only program of the three that prints calibration bars along the sides of the color separations it produces. These not only help you calibrate your imagesetter, but they also help printers calibrate their presses for your job.

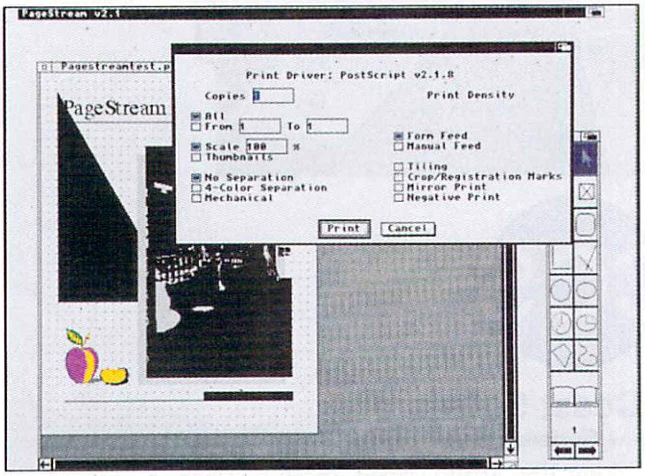
Whether you have your own imagesetter or simply use the services of an output bureau, you must set the right output specifications within your program to print correctly to various imagesetters or other output devices. The halftone dots on each of the four pieces of film of a color separation are printed at an angle different from that set for each of the other three. This is done to ensure that no disturbing interference patterns (the moiré patterns mentioned earlier) are created between the halftone dots of one film and those of another.

Angles of 105 degrees for cyan, 75 for magenta, 90 for yellow, and 45 for black are commonly used in traditional color separations for any particular line-density setting. Think of the line density of a color separation, measured in lines-per-inch (lpi), as a kind of equivalent to the resolution on a computer screen.

Although the Compugraphic 9800 imagesetter has a rated resolution of 2400 dots per inch, that is not the resolution at which your scanned images will actually print. Those 2400 dots can be only on or off; i.e., they are either black or white. Imagesetters use a grid of ►



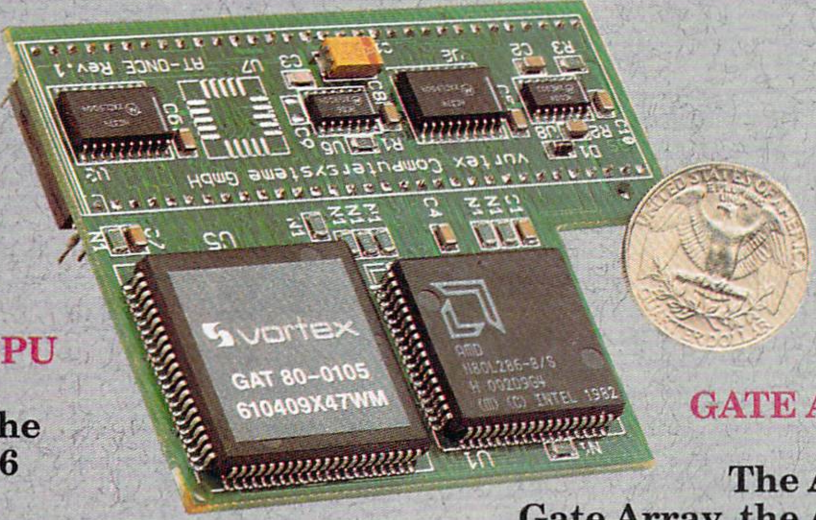
Saxon Publisher's APEX color-separation system allows you to modify the levels of impurities in the inks used by the printer.



PageStream's strengths include its intuitive interface and ability to perform mechanical separations on bitmapped images.

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ATonce emulates the following video adapters: EGA-/VGA-monochrome-graphics (as far as this is possible with an Amiga), CGA, Hercules, Olivetti and Toshiba 3100.
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ATonce runs with the 7.2 MHz clock speed of the Amiga. The Norton SI rating is 6.1.
Each ATonce is supplied with a high quality low power Motorola 68000 CPU, saving you time with the installation and providing a high degree of reliability.
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In the Amiga 500 ATonce plugs directly into the socket of the 68000 CPU. In the Amiga 2000 it is plugged onto the extra adapter which is fitted in one of the Amiga slots.
No soldering is required. Fitting is a 10 minute operation and full installation instructions are included in the user manual.
A 3.5" Amiga floppy disk is supplied that contains the installation and emulation software and other useful tools. DOS and the adapter are not parts of the delivery.
For further information or updates, please contact your local Amiga dealer or call Compuserve Mailbox # 100015,330.

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several of these dots to represent one gray halftone dot. Therefore, in order to display up to 256 grays, the imagesetter requires at least a 16 x 16 dot grid pattern, in which the individual dots are either on or off depending on the gray required. With all the dots switched on, you obtain a black halftone dot; with only half of them on, you get a 50% gray dot. While the effective resolution at which scanned images are printed is then only about 150 halftone dots (150 lpi), this also is generally about the maximum line density of most offset printing presses.

For reasons that I will not go into in this article, the traditional angle and line-density (frequency) settings do not work out as well on digital systems—such as imagesetters—as they do on other output devices. To obtain the least amount of moiré patterning, therefore, the following angle/frequency settings are recommended for the two most popular imagesetters, the Compugraphic 9800 and the Linotronic 330R:

COMPUGRAPHIC CG 9800*

At 1200 dpi/133 lpi

Color	Angle	Frequency
Cyan	18.43	126.50
Magenta	71.57	126.50
Yellow	0.0	133.33
Black	45.0	141.42

At 2400 dpi/160 lpi

Color	Angle	Frequency
Cyan	18.43	151.789
Magenta	71.57	151.789
Yellow	0.0	160.0
Black	45.0	169.706

LINOTRONIC L 330R**

At 1200 dpi/133 lpi

Color	Angle	Frequency
Cyan	18.43	133.858
Magenta	71.57	133.858
Yellow	0.0	127.0
Black	45.0	119.657

At 2400 dpi/160 lpi

Color	Angle	Frequency
Cyan	29.74	157.53
Magenta	66.80	166.75
Yellow	0.0	158.75
Black	45.0	163.27

* Compugraphic CG 9800 with the Emerald RIP.
** Linotronic L 330R with RIP 30.

Using an imagesetter and printing on an offset press is not, of course, the only way of obtaining color output with your Amiga publishing program. There are now several color PostScript laser printers on the market, the most popular being those from QMS and NEC. (Relatively low-cost—just under $7000—models from both of these companies appeared only a few weeks before this article went to press: QMS' ColorScript 100 Model 10*p* and NEC's Colormate PS Model 40/80, both of which are described in more detail in this month's "Overscan," p. 8.) These printers are good tools for preliminary proofing of your designs before you go to press or before you get better-quality (and more expensive) proofs such as color keys or chromalins.

Although you can obtain fairly good quality with text and structured graphics by using these printers, scanned images tend to look quite shabby at the 60 lpi frequency to which you are limited. Both Professional Page and PageStream—but not Saxon Publisher—are able to print in color to these kinds of laser printers. To achieve moiré-free output from color laser printers, you must also use nonstandard angles and line densities obtainable from the printer manufacturers or from PostScript's developer, Adobe Systems.

Test Results and Conclusions

I took the original photograph (reproduced on the opening page of this article) that is the basis for the test separations about 14 years ago at a farm fair in Norwich, England. The slide was scanned on a Scitex drum scanner. I transferred the resulting TIFF file from the Macintosh to the Amiga with Progressive Peripheral's DoubleTalk networking card and then converted it to a 24-bit IFF file using ASDG's Art Department Professional.

I created the graduated background with AD Pro's Background load module and then saved it as an IFF24 file. The apple at the lower-left corner was originally an Adobe Illustrator '88 file that I converted to Gold Disk's Professional Draw Clip format. Unfortunately, Saxon Publisher does not support this format, so I had to convert it to an Encapsulated PostScript file, which, as you can see, Saxon was not able to print properly. I am told that an upcoming release will fix this bug. Ironically, Soft-Logik's PageStream is the only program that printed the Professional Draw Clip properly.

The table at the bottom of this page shows some vital statistics for each of the three separations.

In case you are wondering how I got the real-life shadow effect, here is how to do it: Use a gray box to create your shadow and overlay it on the background you want. When you are ready to color separate, separate only the black film. Then, before you separate the CMY, delete the gray shadow box. Now when the page is printed, the areas under the box will still be there, but they will be darker because the gray will be printed over them. Try it.

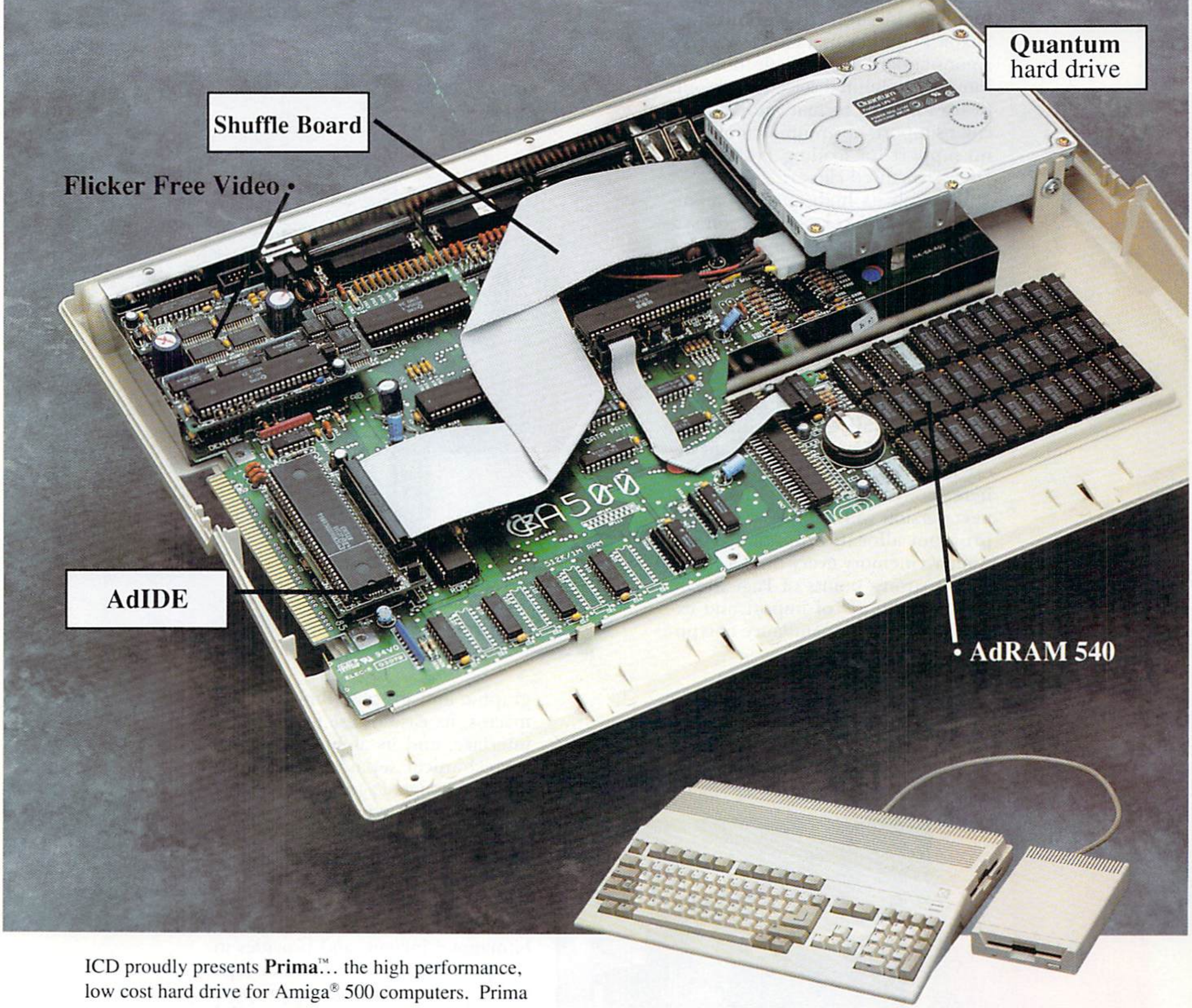
The sample separations clearly show that Saxon Publisher produces the best-quality color separations, and it does so in the least amount of time. Saying that, ►

Program	Document Size	Output Time	Full Screen Refresh Time	RAM	PostScript File Size
Professional Page	32K	24 mins.	4 secs.	1.37MB	8MB
PageStream	2986K	14 mins.	66 secs.	3.80MB	8MB
Saxon Publisher	3K	12 mins.	6 secs.	*	8MB

* Saxon Publisher uses one-half of your system RAM each time it runs.

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of course, does not mean that Saxon is necessarily the best desktop-publishing solution for the Amiga, because there are many more factors involved in successful publishing. Saxon Publisher users are stuck with a nonstandard and difficult-to-master interface, a limited selection of fonts (it uses its own format), no Pantone color support, no grouping tools, and no support for loading Professional Draw structured clip art.

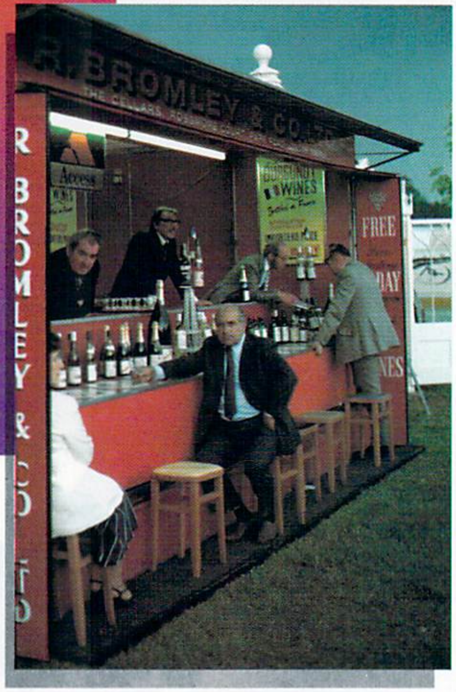
Yet, with its high-quality patent-pending APEX color-separation system and its versatility in modifying separation settings, it is definitely a necessary program for any desktop publisher who wants the best color-separated images from his or her Amiga. As stated, Saxon generates the fastest color separations, which is another important advantage for professional publishers dealing with clients who always seem to want everything "yesterday." A big drawback here, however, and one I hope the next version will remedy, is that the program allocates one-half of the Amiga's memory every time it runs.

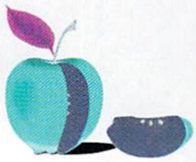
The strong points of PageStream are its multitude of import and export modules, its abundance of typographic and graphic functions and macros, its ease of use and intuitive interface, and its ability to perform a mechanical separation on a bitmapped image. PageStream will load just about any type of text, image, or graphics format—be it Amiga, Mac, or PC.

On the downside, it takes forever to perform screen refreshes, offers poor-quality screen representation of bitmapped images, and provides inadequate control over the color-separation process. Another major problem, as far as high-end color work is concerned, is the way PageStream saves files and uses memory: It saves scanned images along with the file, making them unmanageably large, and it keeps them in memory while you work on your file. A fellow desktop publisher was unable to use PageStream for a project he was working on because he needed to import three 8MB scanned images and a host of structured graphics. The resulting file would have been about 27MB in size when saved to disk, requiring an Amiga with about 32MB of memory.

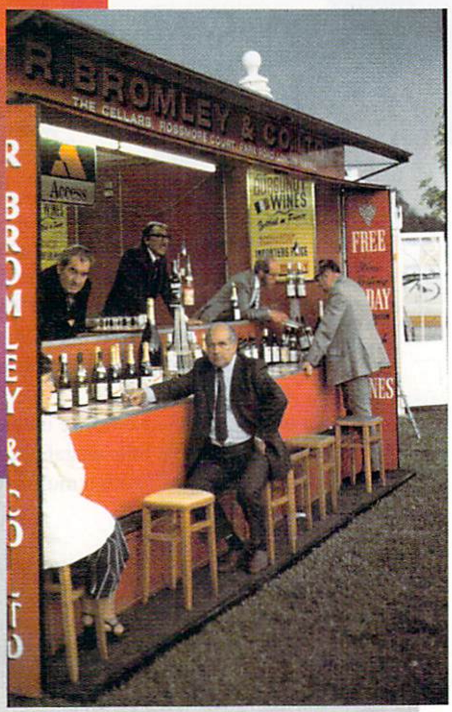
If you intend to create simple one- or two-color jobs, such as flyers, newsletters, and the like, then Page-

Saxon Publisher 1.1



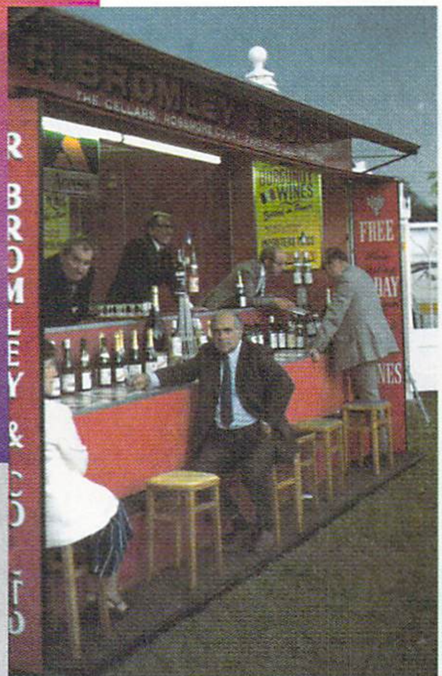


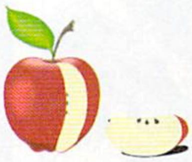
PageStream 2.1





Professional Page 2.0





Stream may be the perfect program for you; but if you intend to create full-color ads, magazines, and other image-intensive jobs, you may find this program is sometimes unsuited to the task.

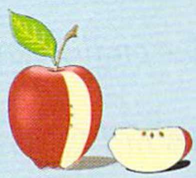
Professional Page is a solid, well-designed program with a number of useful and attractive features. Unfortunately, it does lack several important functions that are available in the other two programs. It needs to offer support for a much wider variety of import and export formats, as well as for a number of popular Amiga word processors. (For example, it does not support excellence!, ProWrite, or Pen Pal, but it does support others that are no longer generally available.) Its built-in article editor does allow you to edit text easily within your layout, which makes it useful but not very powerful when compared with top Amiga word processors such as ProWrite 3.1.

The program also does not provide for such simple yet important tasks as being able to save your Preferences, separation specs, or Compugraphic font settings. On the upside, though, Professional Page is the only program that directly supports the Pantone Matching System—a must for professional publishers. When it comes to mechanical separations, it also has the upper hand because, unlike the other two programs, it is able to produce shades of mechanical colors.

Of the three programs, Pro Page provides the most accurate and attractive screen representations, displaying images in four shades of gray and automatically dithering colors so it appears that thousands of colors are available. It is a solid program and well suited for image-intensive color work. Although it desperately needs more features and better separation algorithms, it is still another necessary tool for color publishers.

As you can see, each of these programs has its own particular strengths and weaknesses, so until their three manufacturers get together and create a program called "Professional SaxonStream," I am afraid the best advice I can offer Amiga desktop publishers is to get all three programs and to use each for what it does best. If you cannot afford to do that, then choose the program whose strengths, as outlined in this article, coincide most closely with your needs. Rumor (unsubstantiated at press time) has it that upgraded and improved versions of all three programs are currently being developed, and I for one am very eager to find out what each one has to offer next.

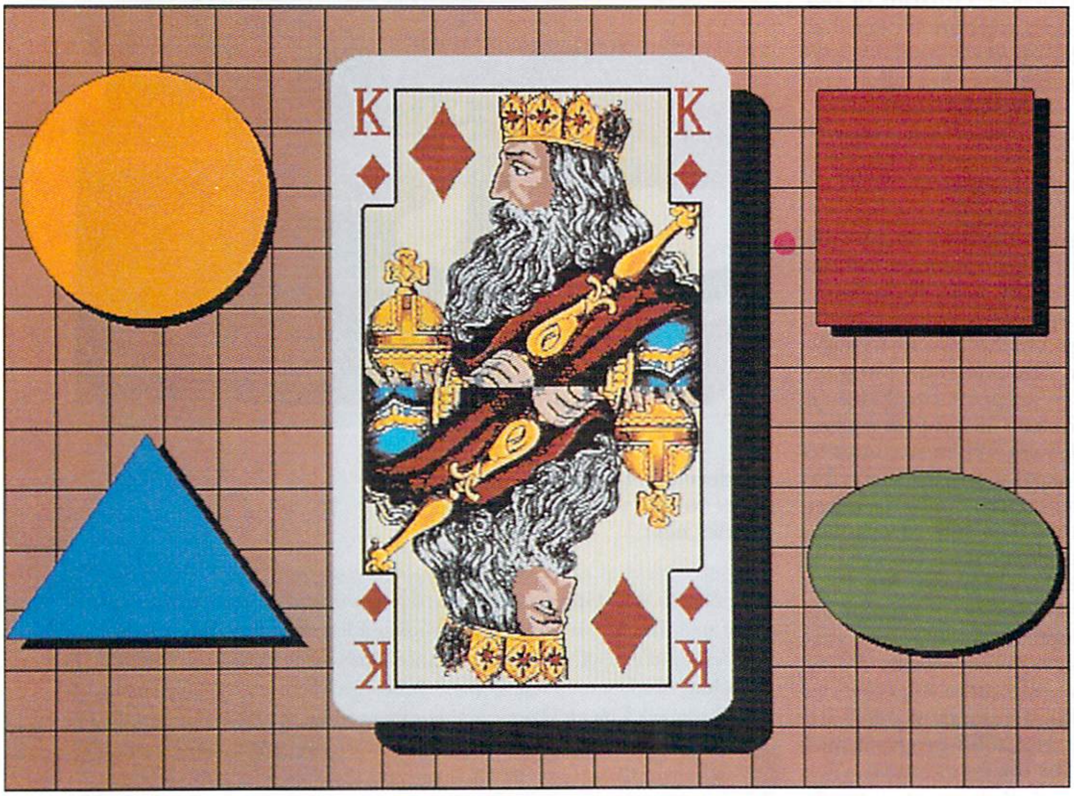
Editor's Note: Information received just as this article went to press indicated that **Saxon Publisher 1.2**—slated for release on July 15—will offer a number of significant enhancements over version 1.1, and will include SaxonScript Professional, a PostScript interpreter. 1.2 reportedly will support a much larger number of fonts than the limited repertoire available under 1.1. Of particular relevance to the subjects discussed in this article, 1.2 supposedly will offer more accurate on-screen color displays through a new PostScript color-screen preview feature that will make it possible for users to identify moiré patterns. Version 1.2 will also provide color-printing capability to PostScript laser printers for more accurate color proofs. The suggested retail price for 1.2 is $395. ■



Eyo Sama is former publisher of Amigo Times, *a full-color magazine that was was created entirely on the Amiga. He currently does consulting work for publishing houses and is writing a book and developing software. He would like to thank Rick Rock of Compu-Art for making his Compugraphic 9800 imagesetter available for the tests done for this article. Write to him c/o* AmigaWorld *Editorial, 80 Elm St., Peterborough, NH 03458.*

Royal

"In the land of the blind, the one-eyed is king," goes an old saying, but don't become a victim of single-system focus just because the Amiga is the best graphics



machine on the market. The confusing—yes, blinding—welter of formats and peculiarities in PC/Mac graphics is indeed a liability for the Big Two. Yet considering the huge installed base within their realms, it would be shortsighted to ignore the sheer economic opportunity out there for converting Amiga-generated graphics to output on these other platforms.

Opportunities

CONVERTING AMIGA GRAPHICS FOR PC/MAC OUTPUT

Throughout history, many countries have established their influence more through trade and commerce than sheer military might—which means countries are more dependent on each other than "superpower" proponents might admit. In today's world, for instance, there is an "international" flavor to almost everything. No country can remain self-sufficient and insular and expect to survive. Every country has its trading partners, and all depend on international markets for the sale of at least some of their goods and services.

The same holds true in the world of computers. Text, images, and other data created on one computer system are often destined for final output on another, and the volume of traffic among different platforms continues to grow. With major "trading partners" such as the IBM PC (and clones) and the Macintosh sporting huge installed bases, Amiga graphics producers, especially, enjoy an enormous "international market" for their creations.

The problem facing such Amiga users is how to transform their creations—images, animations, and the like—for eventual output on other platforms. A great deal of progress, however, has been made on the import/export front. With the right hardware and file/disk-conversion facilities, plus some expertise in image-processing techniques, Amiga users can overcome many "trade barriers" and reap a handsome profit. *(For details on how to contact the developers of products covered in this article, consult the "Manufacturers'/Distributors' Addresses" list on p. 100.)*

TOOLS OF TRADE

Setting up your trade routes is a tale of two choices: shipping your files via disk or sending them electronically. If your pictorial cargo is intended for a PC, you can create the disk with ***Consultron***'s **CrossDOS** ($39.95) and any Amiga floppy or hard-disk drive. ***Commodore***'s **Bridgeboards** (A2088D for PC/XT, $499; A2286D for PC/AT, $799) also do the job, but are much more costly than the software solution. Nevertheless, if you do a lot of work intended for the PC, you can use this computer-on-a-card to create and preview low-resolution images or to transfer extra-large files to another PC via a portable hard drive.

Your trek to the Apple market will not be as easy as your journey to the PC. Establishing trade relations with the Macintosh presents a unique problem. The Mac uses special floppy drives designed for that machine only, which means that in addition to software, you will need a Mac drive to configure your cargo.

The choices you have here, ***ReadySoft***'s **AMax II** ($249.95) and ***New Horizons***' **Mac-2-DOS** ($349.95, including Mac-compatible disk drive; $99.95, software only), are hardware/software solutions that use the external floppy-disk port to communicate with your Amiga. AMax II transforms your computer into a Mac and would be the ideal Mac processing solution if it supported color—but it doesn't. Mac-2-DOS simply adds the Mac drive to the Amiga's device list so you can read and write to it just like any other Amiga unit, but in Macintosh format.

None of the Macintosh emulators/adapters I used supported a hard-disk-to-hard-disk transfer between Amiga and Mac drives. Although AMax II can use your Amiga hard drive to store its files, it does not recognize your Amiga data, while Mac-2-DOS supports only floppy drives. This means that if the file is too large for a floppy disk, you will have to use a network, a direct-cable connection, or a modem for transfer (these methods work effectively with MS-DOS systems, too).

If you are lucky enough to have your Amiga on a network with the target machine, simply send a properly formatted file to the other unit. A direct connection, via serial cable, is the cheapest, fastest way to move your cargo to any other machine. If ►

By Gene Brawn

both units are running communications software, the hookup, while not always painless, is worth the trouble.

Sharing an electronic mailbox with the target computer is a viable, if costly, alternative to the direct-connection solution. Uploading, then downloading, a one-megabyte picture gets expensive fast, and it takes forever (don't even think about doing this with animation files!).

If nothing else works, and you are really desperate to get your file on a floppy disk, give one of the public-domain compression programs—ARC, ZOO, and PAK, or their newer, more powerful cousins, LHARC and PKAZIP—a shot at squeezing a little more data onto your disk. Remember, the target machine must have a version of the same protocol in order to decompress the file.

Another way to skin a floppy is to use the raw RGB format (commonly called "Sculpt" on the Amiga) to divide the file in thirds, and then move it across and reassemble it. If none of the above methods works for you, sacrifice a little quality and use fewer colors, say 256, which will result in files about one-third the size of those produced with 24-bit color.

Also, while we are still on the subject of transferring files, here is something to keep in mind when you are working on the opposite side of the equation with the other guys' file formats: Beware of TIFF files, which become huge very quickly; instead, use GIF or PCX files, for these are much smaller (see the next section for more on file formats).

Speaking the Lingo

When it comes to graphics-file formats, we Amigans are undoubtedly spoiled. While the rest of the computer-graphics world struggles with dozens of display formats, we have the IFF standard. If, however, we are to convert our versatile IFF files to IBM's PCX and Targa formats, Mac's TIFF, or the ubiquitous GIF from CompuServe, we need very powerful software, indeed. Two packages, ***ASDG***'s **Art Department Professional** ($240) with **Professional Conversion Pack** ($90 extra) and ***Active Circuits***' **RasterLink** ($199.95), certainly meet this qualification.

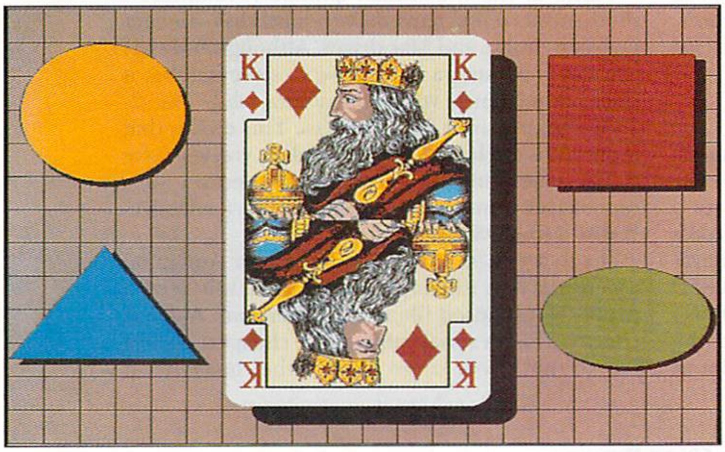


Figure 1. Here is how the original 640×400 IFF image created on the Amiga (and which appears on the opening page of this article) looks when displayed as a GIF image on the Mac. Note how it appears somewhat "squashed" from top to bottom.

The list of foreign formats that these two applications read and write is impressive:

File Format	AD Pro	RasterLink
TIFF	✓	✓
GIF	✓	✓
PCX	✓	✓
Targa	✓	✓
PICT	✓	✓
Raw RGB	✓	✓
MacPaint	✓	✓
DPIIE	✓	
Rendition	✓	
PostScript	✓	
Sun		✓
Caligari Broadcast		✓
ACS Harlequin		✓

Both applications also handle the major Amiga bitmapped formats, and both are easy to use. Simply point and click to select the filenames and formats to use for the conversion; the software does the rest. Animators, especially, will appreciate the batch-processing functions offered by each program.

Testing the major file-format connversion combinations with both programs, I was able to obtain excellent results with the TIFF, RGB, PCX, and GIF formats. I was particularly impressed with AD Pro's GIF conversion; it actually looked better than the original! Both programs, however, do a great job—with AD Pro getting the nod for "most comprehensive" because of its extensive collection of image-processing tools (which we will look at later on).

Keep in mind that most MS-DOS applications look for an extension to the filename that identifies its format. For example, some paint programs will not read the common PCX format without a ".PCX" added to the end of the filename. (Surprisingly, though, AD Pro did not automatically append the appropriate extensions to my converted files—I had to add them myself.)

Similarly, the Macintosh uses a system of "headers" attached to each file that carry the name of the program that created the file and its official format. If this data does not match what the Mac application is expecting, it will not recognize the file. More detailed information on these Mac designations is available in the AMax II and Mac-2-DOS manuals. If you do encounter a particularly recalcitrant file, use one of the Mac's numerous disk utilities to change the header.

For the budget-minded, the ***Amiga Videographics Guild*** and ***DevWare*** offer collections of public-domain and shareware file converters at reasonable tariffs. If you are really pinching pennies, it is possible in some cases to get away without converting the file at all.

The PC versions of ***Electronic Arts***' **DeluxePaint** (Enhanced, $135.95; and Animate, $134.95) accept ILBM (Interleaved Bitmap) files up to 64 colors (with the .LBM extension), while such Macintosh mainstays as **Studio 8** ($295, ***Electronic Arts***) and **PhotoShop** ($895, ***Adobe Systems***) will read IFF files. None of these applications, however, supports HAM or recognizes ANIM files. With the latter, you must save each frame as a separate image and reassemble the sequence on the other side in the animation format of the platform you are working on—a painful process. ►

Processing and Previewing Your Cargo

In crossing over to another platform, the last thing you want to have happen is for the other guy's software to stretch and squeeze your work beyond all recognition. The area most likely to cause trouble is aspect ratio, because your Amiga's pixels are not the same size as those of the other two systems: The Mac's pixels are square and the PC's, while rectangular, are shorter than the Amiga's. Although your 640×400 image fills the screen in both cases, the other systems pack more pixels vertically, so that your perfect picture looks as if someone had stepped on it (see Figure 1 for an example of this on the Mac).

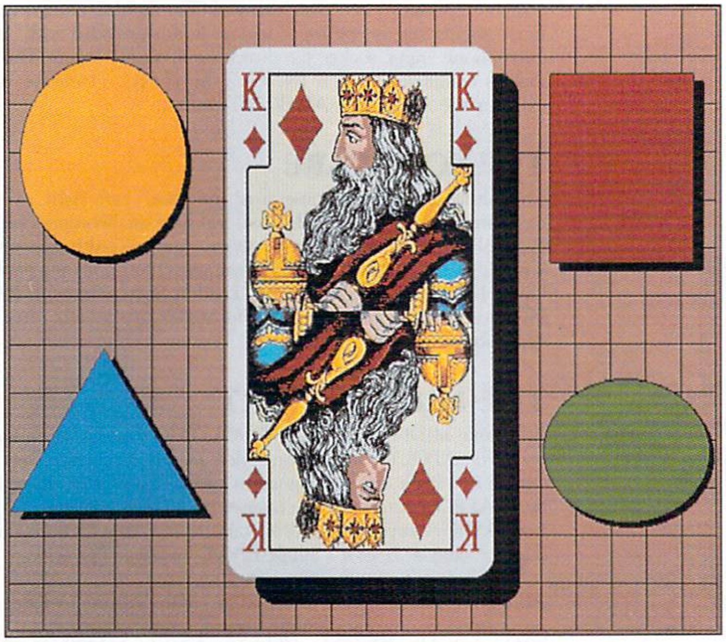


Figure 2. Back in Amiga format, the same image has now been "stretched" vertically to 640×480 via AD Pro image-processing tools. Displayed on the Amiga, it now looks oddly tall and skinny. However...

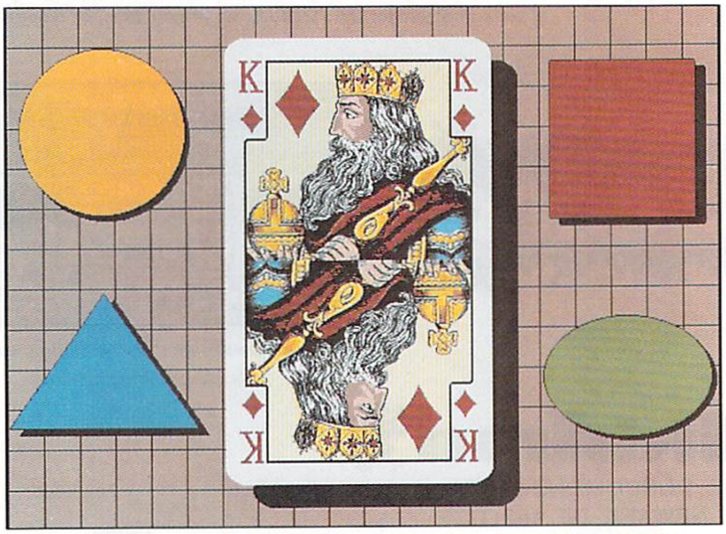


Figure 3....when the stretched image is now displayed back on the Mac, it looks perfectly fine. In fact, now go compare it with the original Amiga image on the opening page, and you will see there is virtually no difference!

Fortunately, there is an easy fix, but you need an image processor to pull it off. I used AD Pro's Scale tool to stretch my 640×400 IFF image vertically to 640×480 for display on both the Mac and the PC (and clones). Before enlarging it, I used the program's superior dithering routines to break up the image, thus minimizing any banding effects when the picture is stretched and the pixels enlarged. Although the tall, skinny images might look odd on your Amiga (see Figure 2 for a Mac example), they look fine on the other machines (see Figure 3, again for a Mac example).

As long as your artwork uses a palette of 256 or fewer colors, you can use a stock Amiga (4096 colors/no frame buffer) for the job. Because, however, many Amiga graphics packages can understand and manipulate 16-million-color, 24-bit images, you'll be working blind unless you modify your computer to display them.

Simulating the color Targa and PC displays or the Macintosh's "standard" 16-bit image on an Amiga requires a frame buffer. Whether it uses your TV set or your RGB monitor to display its graphic output, a frame buffer replaces your Amiga's normal video with its own, high-resolution image.

A new generation of Amiga imaging devices is available to do this job, including two low-end external boxes: **HAM-E** ($299.95, ***Black Belt Systems***), which, although not actually a 16- or 24-bit frame buffer, displays most 24-bit files adequately; and **DCTV** ($495, ***Digital Creations***), which offers full 24-bit support and sports an economical NTSC output. On the higher end, **Firecracker** 24 ($995, ***Impulse***) is a 24-bit video card offering full-blown RGB display output. All of these devices include a paint program and some image-processing features.

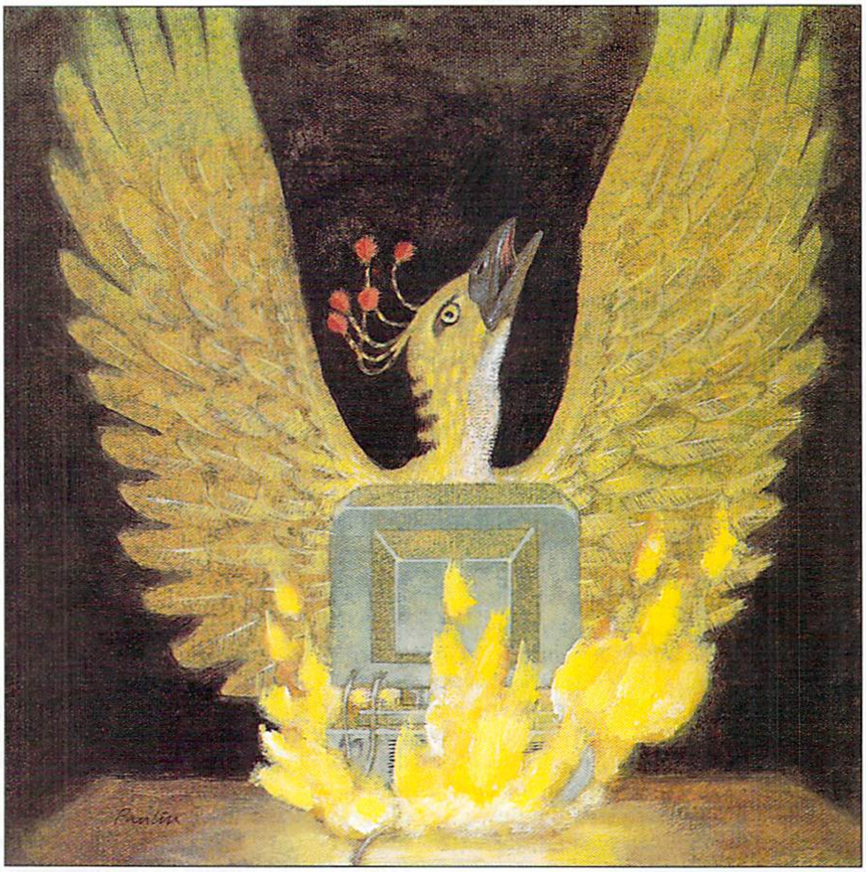
In making choices here, do keep in mind that while using your TV monitor for display is an economical solution, the TV display is really only an approximation of the final RGB image. NTSC screens are not as sharp as RGB—the colors may be shifted from the RGB original—and they cannot reproduce all the colors in a 24-bit display. The latter, however, is not a serious handicap, because in the real world, you will rarely use all 16 million colors in any image.

When working with RGB files, though, one thing you should definitely consider as a must is an accelerator card. RGB files can reach enormous sizes, which means very long processing times. A faster computer will make your export endeavors much more productive. Accelerator cards sporting 68020, 68030, or 68040 processors are available from CSA, Commodore, GVP, Progressive Peripherals, RCS, Supra, and TTR.

With recent news about possible cooperation between Apple and IBM, and other stirrings in the direction of open systems, the prospects for even greater "free trade" are growing. While smaller than the two superpowers, Commodore—with its Amiga flagship flying superior graphics and video—should seek to establish its influence in the market more firmly and cash in on the wealth of opportunity that awaits...and so should you! ■

Gene Brawn is a digital animator, graphics designer, and frequent lecturer, as well as a contributing editor to this magazine. Write to him c/o AmigaWorld *Editorial Dept., 80 Elm St., Peterborough, NH 03458.*

OPERATION PHOENIX



Like that mythical Egyptian bird, we'll have you up and flying out of the ashes of even the most fiery hard-disk crash.

There is nothing quite like that sinking feeling you get when you turn on your computer and see a requester that says "Not a DOS disk in Unit 0." Suddenly, you realize that all the information you had stored on that disk may be gone forever. When the device in question is a hard disk, the feeling is especially devastating...that is, unless you have prepared yourself ahead of time.

We will start Operation Phoenix by looking at how you can insulate yourself from catastrophic data loss. We will also examine the causes of hard-disk problems and discuss how to salvage your data when a crash does happen. Finally, we will review the basics of hard-disk recovery—principles that will enable you to respond calmly should you ever experience a crash.

Back Up and Away

Your best line of defense in preparation for hard-disk disaster is to keep duplicate copies of your information somewhere else. Although this "somewhere else" can be almost any media, the least expensive and most common back-up media are multiple floppy disks. Floppy backup can be very time consuming, particularly if you have a large hard disk. To minimize the time and trouble, you should use software specifically designed for hard-drive backup (as opposed to that designed for general file copying). *(For addresses of product developers or distributors, see the list on p. 100.)*

There are several good commercial back-up programs available, including **Quarterback** ($69.95, ***Central Coast Software***) and **SuperBack** ($79.95, ***The Disc Company***). There are also a number of freely distributable back-up programs, including Matt Dillon's **Backup** and Mark Rinfret's **MRBackup**. Here are some desirable features you should look for when shopping for back-up-to-floppy software:

• *Selective backup.* It is usually more convenient to back up selected files and directories, rather than copy all the files on a partition each time. Most software allows you to mark the desired files and directories by clicking on them in a file requester. Some programs let you select files based on their date of creation. Also, some programs use archive bits (flags that the program sets when it makes the backup), which usually allow you to perform incremental backups. This means that instead of copying the whole disk every time you back up, you can do a full backup the first time and subse- ►

By Sheldon Leemon

ILLUSTRATED BY DOUG PAULIN

quently save only new or altered files. Incremental backups take less time than full backups, but they require more disks and make the restoration process slower and more complex.

• *File compression.* Some backup programs compress files as they save. This reduces the number of disks required, but makes both the backup and restoration processes slower. File compression can also make it more difficult to salvage your data if an error occurs, for it may be impossible to decompress a file that becomes scrambled.

• *Special disk formats.* Special disk formats allow some programs to pack more data onto the disk (thus using fewer disks) and to write files faster. Because AmigaDOS cannot read these formats, however, you cannot restore a file from the back-up set without having a copy of the back-up program handy.

• *Write verification.* Many programs allow you either to verify that the software has copied the file correctly (by reading the file after it is written and comparing it to the original), or to turn off the verification option for faster writes.

• *Multiple devices.* Some back-up programs support only one internal drive, while others let you back up to multiple floppies or to such devices as tape drives or removable-media drives.

• *Error recovery.* If an error turns up that makes it difficult for your back-up program to read one or more files, the program should be able to skip the unreadable files and restore the ones it can read.

Flight Maintenance Schedule

With good software, you can back up about a megabyte of data per minute. This means that a full backup of a large hard drive can take half an hour, an hour, or even longer, during which time you must swap floppy disks every couple of minutes. At that rate, frequent backups can cancel out some of the speed and convenience benefits of hard drives.

The question arises, then, as to how often it is necessary to back up your drive. The short answer is that you should always have a copy of any data that would take more than a few minutes to re-create. (That holds true even when you are using only floppy disks or other storage media.) For example, while I was writing this article, I saved it to hard disk every few minutes or so, but subsequent to every fourth or fifth save, I also copied it to a floppy.

Keeping a back-up floppy in your drive at all times is a good habit to establish. It stops your drive from making that annoying clicking sound, and one floppy is generally sufficient to store all of the important files that you can create in a month or more. If you copy each new file to a floppy disk, you need not back up your hard drive more than once every two or three months.

Besides using good software, another thing that can save you time and trouble when backing up to floppy disks is hard-drive partitioning. Although some people like to store all their information in one large pool, I prefer to divide my disk into sections—even though each partition requires memory for buffer space. For one thing, partitioning is a partial safeguard against disk errors. An error that appears in one partition will probably not affect the data in the others, making it less likely that you will lose all your information in one fell swoop. For another, partitions are a help in sorting your files into two basic groups: those that require frequent backups and those that do not.

A partition containing programs and files that other people have created (e.g., commercial applications such as word processors) does not change very often, except that you may add or delete files from time to time. You do not need to make backups of these files if you already have backups in the form of the original program disks. The only really irreplaceable files are those that are the products of your own work.

Keeping your data files separate from program files is a little more work (particularly because some file requesters default to the directory from which the program is run), but the time it saves in backups makes it worthwhile. If you want, you can keep track of the files in your program partition by occasionally saving a complete directory to floppy (using the CLI command DIR >df0:Partition Contents dh0: ALL), so that you can more easily reconstruct its contents.

Alternate Carriers

Although the floppy-disk method is the least expensive way to back up your hard drive, it is not the most convenient. Streaming-tape drives are generally considered the best back-up media. These cost hundreds of dollars, but they allow you to effortlessly back up an entire volume in just a few minutes using inexpensive tape cartridges. Affordable tape systems are just starting to become available for the Amiga. ***Great Valley Products*** and ***Advanced Storage Systems*** both have tape-drive and backup-software systems, while ***Progressive Peripherals*** has announced a system that interfaces through the floppy port and should work with any Amiga hard drive.

Several programmers are developing software for SCSI tape-backup systems as well. Programs such as **MrBackup Professional** ($54.95, ***TTR Development***) promise to let you connect a SCSI streaming-tape drive to any SCSI controller and make backups using the SCSI-direct command set. There are even a few freely redistributable programs for use with tape systems, including **BTNTape** on ***Fred Fish*** disk #392. Other convenient back-up options include removable-media drives such as the Syquest, Bernoulli, and Ricoh cartridge drives—or even an extra hard disk. Although these options are even pricier, you may find them appropriate if you have certain needs. (See "Bottomless Disks," April '91, p. 20, for a discussion of mass-storage devices.)

Regardless of which media you use, saving a copy of the mounting information for all of your drives is another measure you can take to stave off catastrophic loss. On systems that use one of the older drive controllers (such as the Commodore 2090A), this information is contained in the devs:mountlist file and is used to mount each drive partition.

Newer drive controllers store pertinent information (including the name of each partition, the starting and ending cylinder numbers of the partitions, the number of surfaces or drive heads, the number of sectors per ►

Lifetime Pass

The Penny Arcade

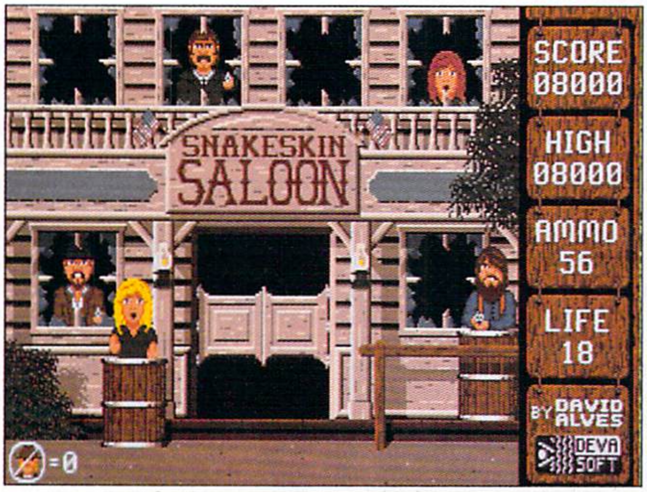
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Trampoline
Some types of games are classics and Trampoline fits the description in every sense of the word. Similar to popular arcade classics like Breakout and Arkanoid, Trampoline is a multilevel game of action. You use a trampoline to help the "little tramp" bounce and break the balloons with his umbrella, some of which are stuffed with money! The trick is to catch the coins without dropping our hero!

GeoRoll
This unique two-player dice game uses dice with geometric patterns instead of numbers. The idea is to roll the best hand, trying for a full house, three, four or five of a kind, as well as a variety of other combinations. Good graphics and solid game play!



Snakeskin Saloon
Following in the tradition of great shoot-em-ups like Capone comes this high speed game of action and rescue. Your job as sheriff is to save the ladies from the clutches of the desperados who are hiding in the saloon! Shoot your 44 Magnum fast and true, while looking out for the dynamite! From its detailed graphics to digitized sound, Snakeskin Saloon is guaranteed to make your day!

Poker
For those who want the thrill of Vegas without the fear of going broke, Deluxe Poker is the game you have been looking for. Using a point and click interface, you can play draw poker all night long, and if you do go broke, who cares!

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GD991

track, and the total number of cylinders on the hard drive itself) in special blocks known as Rigid Disk Blocks (RDBs). Although AmigaDOS cannot read this information, the drive-setup programs that come with most hard-drive controllers can, and they can copy it to a mountlist file on a floppy disk.

If your hard-drive preparation software does not let you save this data to disk, copy it down manually and keep it handy so that you can create a mountlist entry if need be. Should the RDB information become corrupt, your hard drive will no longer boot automatically, but you may be able to access the data by using the AmigaDOS MOUNT command to manually mount each partition after booting from a Workbench floppy. If there was a mountlist entry for a partition called dh0:, for example, you would use the command MOUNT dh0:.

If you can mount your partitions manually, you may be able to restore the drive completely just by using the controller's set-up software to write out the RDB again. The important thing to remember is that the partition information that you write out to the RDB must be the same as the original information, or else you will be unable to read your drive.

WHERE DOES IT HURT?

Although Murphy's Law proponents may claim that failing to back up important data is the surest method of getting your hard drive to fail, there are actually more substantive causes for hard-drive problems. These fall into three classes: hardware problems, media problems, and disk-structure problems.

Hardware problems are easy to spot because they usually prevent the drive from functioning at all. Typical hardware problems include bad components on either the controller board or the drive, a faulty cable between the two, or bad power-supply connections that prevent the drive from getting power.

In the worst possible scenario, a faulty hard-drive controller can completely prevent your computer from booting up, so that the screen simply stays black, white, or some other color when you turn the computer on. If this happens, make certain that the controller board is seated properly in its slot and that the SCSI cable is plugged in correctly.

Some hardware problems that prevent the drive from booting still allow the computer to be started from a floppy disk. If your system displays a Workbench prompt when you turn it on, run the drive-setup software that comes with the hard disk. Most such software allows you to query the drive. If the set-up software is able to identify the type of drive, then the hardware is probably functioning correctly.

If the software cannot find the controller or driver software, the chances are that the problem is with the board. If you have other SCSI devices mounted and the set-up software cannot find any of them, the problem is likely to be with the drive. Sometimes you can identify a problem with the drive itself by noticing its failure to make the usual start-up noises (generally a whirring sound that gets faster as the drive comes up to speed, followed by the little chirp that the drive head makes when it moves).

Once you have traced the problem to either the controller or the drive, and have tried unsuccessfully to remedy it via the above methods, there's not much you can do but return the faulty component to the manufacturer for repair. (You should first call for a return authorization, though.)

The two other types of problems, media and disk-structure problems, are less likely to require the services of Mr. Goodwrench, but are no less hazardous to your data. Media problems on hard drives present the same symptom as media problems on floppy drives; that is, the familiar "Volume Life's Work has a read/write error" pops up when you try to read from or write to a particular file.

What this means is that the filing system is unable to read or write data on one or more of the disk blocks that are associated with that file. Media errors may indicate an actual physical defect in the magnetic surface on which your information is stored, such as a scratch or particle of dirt. Often, however, the problem is due to magnetic damage—a defect in magnetic signals stored on the media, such as those that show where a data block begins and ends.

A media defect in a data file is relatively easy to live with because the problem arises only when you try to access that file. You may be able to use a directory utility to change the file's name to something invisible (composed entirely of space characters), restore another copy of the file from your back-up set (or use a disk-recovery program to salvage as much of the file as possible), and continue to use the 99.99% of the disk's storage space that is not affected.

Alternatively, you can use one of the programs that test your disk for unreadable blocks and marks them as "out of service," such as **Quarterback Tools** ($89.95, ***Central Coast Software***), **Dr. Ami..** ($49.95, ***Free Spirit Software***), or **ReadBlocks**, which comes with ***Microbotics'* HardFrame** controller. You can also use these programs on a preventive basis to map out bad blocks before they become part of a data file.

Unfortunately, media defects often strike in places more vital than the data area of a file. They can also affect the directory structure that holds the names of files, the data table that shows which disk blocks are associated with which filenames, or the root block, which contains essential information about the entire structure of the disk.

In these cases, you may get a message such as "Error validating disk MyStuff disk is unreadable," or "Not a DOS disk in Unit 0." This kind of error will probably render the entire partition unusable until you reformat it (using your drive-setup software or the AmigaDOS FORMAT command). Sometimes, you may even have to perform a low-level format operation, which will destroy all of the data on all of your partitions.

If you have current back-up copies, reformatting may be an inconvenience, but it will not result in any permanent loss of data. If you do not have current backups, however, you might like to try salvaging some of the data from the damaged partition. There are several programs available that attempt to read as much data as possible from a damaged disk, and then to copy that data to another hard-drive partition or to a series of floppy disks.

In the commercial category, Quarterback Tools provides a convenient means of recovering data. Two freely redistributable programs, Dave Haynie's **Disksalv** and Werner Guenther's **FixDisk**, are also highly effective at copying data from damaged volumes. An ►

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interesting side effect of these programs' data-recovery features is that they can recover files that you delete by mistake—as long as you perform your rescue operation before writing again to the disk.

The final type of drive problem is an error in the logical disk structure. This occurs when AmigaDOS is able to read the structure data from a disk block but cannot make sense of it. For example, the error message "key 1111111 has a checksum error" indicates that the data is invalid, while the message "key 1111111 already set" means that two files claim to own the same data block. Sometimes, this kind of error prevents the disk from being validated, which means that while you may be able to read data from the disk, you cannot write to it. When such an error occurs, you can either try to fix it in place or reformat the drive and restore your backup information to it.

You can try to fix the disk structure in place using such commercial programs as those included in Quarterback Tools and Dr. Ami.., freely redistributable utilities such as FixDisk, or the Workbench's program DiskDoctor. The danger of using them is that if a disk error occurs while these programs are writing vital disk-structure information, the problem may worsen. That is why you should make sure that you have a back-up copy of the disk's contents before you try to use them. If you do not have a good copy of the disk's contents, you should at least try using a disk-recovery program (such as Disksalv, FixDisk, or that of Quarterback Tools) to copy the salvageable data before trying the fix.

EVERY GOOD BIRD DOES FLY...AGAIN

When you see your system spiraling into a nosedive, don't panic. Using the basics of Operation Phoenix, you will soon be off and flying again. Here, in summary, are the principles to keep in mind:

- If the drive does not work at all, check the hardware connections. Make sure the controller is plugged in correctly, the logic cable between the drive and controller is secure, and the drive is getting power.

- If the system can read the drive but gets errors, you can usually restore proper functioning by reformatting the drive or the bad partition. (Because reformatting means losing all of your data, you should always keep a duplicate set of files on floppy—particularly the files you created yourself.)

- If disaster strikes and you do not have a backup, a disk-recovery program will often allow you to salvage much of the disk's contents. ■

Sheldon Leemon is the author of Inside Amiga Graphics *and co-author of* The AmigaDOS Reference Guide. *Write to him c/o* AmigaWorld *Editorial, 80 Elm St., Peterborough, NH 03458.*

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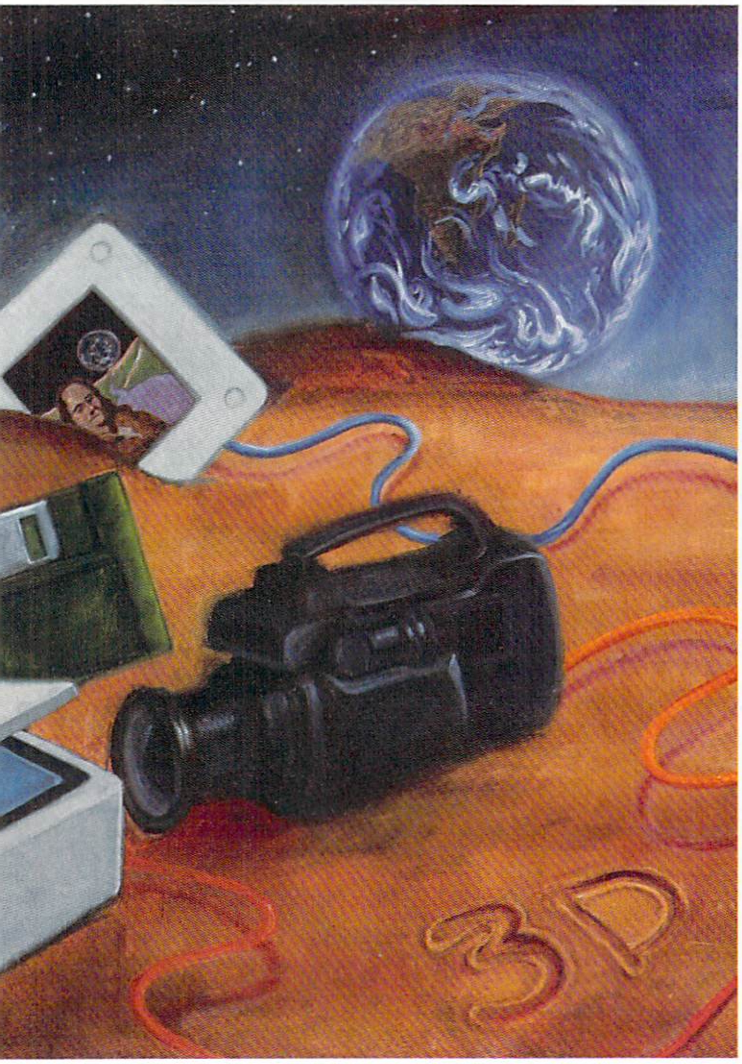
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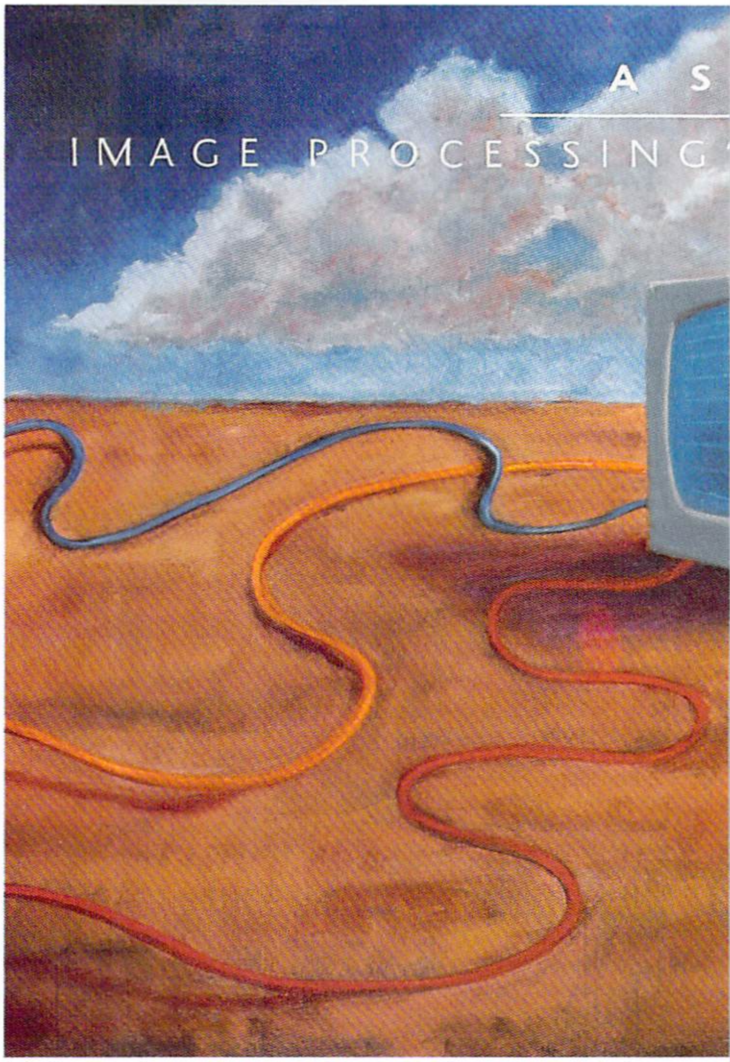
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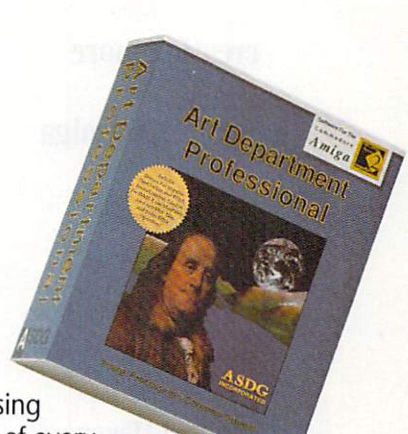
And merge images from different sources (in true color). *ADPro* solves these problems and more with a simple point and click.

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ACCENT ON GRAPHICS

Fantastic Voyages:

Creating a Mars Simulation

31

A continuing series of tips, techniques, and tricks for creating more imaginative Amiga graphics.

By Joel Hagen

MARS HAS LONG been an object of fascination. As a boy I scrutinized hazy and mysterious images of the "red" planet and listened to scientists such as Wernher von Braun and Willy Ley discuss the probability of hardy vegetation patterning the surface. Years later our Mariner and Viking spacecraft journeyed to Mars and returned thrilling images of a desolate and beautiful world.

Today, I sit in my studio watching the landscape of Mars roll by on my Amiga screen as though I were gliding down the vast canyons of Valles Marineris—a trip our spacecraft have yet to make. It *is* a trip, however, that any Amiga owner can simulate by making use of VistaPro, Virtual Reality's landscape-generating program. In this month's column, I will use some of VistaPro's features to explore geologic events from Mar's past.

While VistaPro requires more memory (3MB) and costs more ($149.95) than the original Vista program, many of the techniques I describe also apply to Vista, which requires only 1MB. Keep in mind, however, that Pro offers numerous features and capabilities not found in Vista. (An updated version—1.2—of Vista was just released at $59.95. For a complete review of both programs, see "Landscape Generators" in the "Reviews" section of the July '91 issue, p. 15.)

VistaPro makes shaded, three-dimensional pictures of landscapes. It can create billions of imaginary fractal landscapes, but it can also create pictures of real places, using data based on DEM (Digital Elevation Model) data files from the US Geological Survey. The USGS provides DEM files for most of the surface of the earth and for many of the other planets and moons of our solar system.

Virtual Reality includes a wide variety of DEM landscape files as part of the Vista and VistaPro packages, ranging from Yosemite valley to Olympus Mons on Mars. Additional sets of landscape disks are also available, including the one I used for this project: the six-disk Valles Marineris set ($80), covering the length of Mars' most amazing canyon. You can employ the procedures and techniques outlined here for virtually any kind of simulated exploration of any area for which DEM files are available.

Through an intuitive and sophisticated interface, VistaPro lets you set a camera and target anywhere on the map of the landscape you have loaded. You can adjust lighting, altitude, haze, lens settings, and so on, and then render a full-color shaded image. You can render images in any standard Amiga resolution, including HAM, overscan, and IFF24. You can even create a path through a landscape and then produce an animation with the frames VistaPro can automatically generate for all the points on that path.

VERY GRAND CANYONS

Viking images indicate that water once flowed over the surface of Mars, carving canyons and even forming lakes. There are compelling visual suggestions of lake sedimentation in photos of the Ophir, Candor, and Melas Chasma regions near the middle of Valles Marineris. For the illustration accompanying this column, I chose—from disk 2 of the Valles Marineris set—the Vista DEM file "VM1.scape," which is an overview of that region. Other files from the set cover the area in greater detail, but for this project, I was looking for an aerial view that would show the whole region. I wanted to experiment with ways of re-creating what the canyons might have looked like with lakes of different depths.

After loading the DEM landscape, I froze the X positions of camera and target by clicking on the X button in the Control panel. This kept me centered over the valley. I moved the camera slightly south and the target slightly north to give some perspective to the view. The height of the camera above the landscape—its Z position—defaults

Lift off for a little interplanetary exploration with this simulation tutorial using VistaPro.

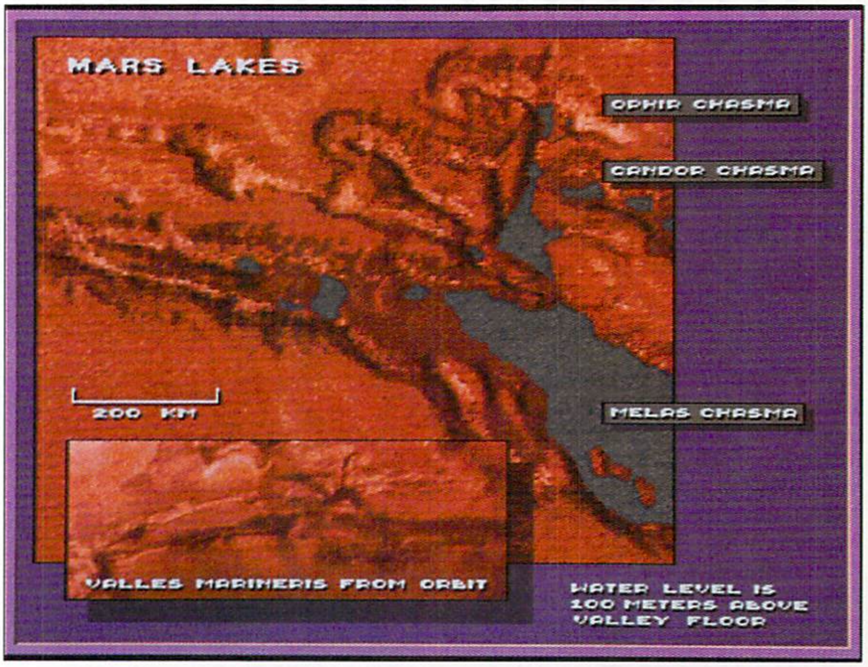
to 30 meters, but I wanted a higher viewing angle, so I entered a value of 6000 meters in the camera's Z gadget. From the menu, I selected nonoverscan, lo-res interlace as a rendering resolution. Bringing up the Palette controls, I set sky color to black so as to isolate the landscape, and I made a gray-blue water color for the lakes I planned.

The DEM files of Valles Marineris have a vertical exaggeration of 3.5 applied to all the data. This enhances certain features for study, but it also gives a misleading appearance to the landscapes. VistaPro's controls let you scale the data back to normal values. To make my view look as realistic as possible, I entered a value of 0.29—the reciprocal of 3.5—in the Scale gadget, thus eliminating vertical exaggeration.

Switching to the Light controls, I set light direction from the east and returned to the main Control panel. To check the results of my settings, I did a quick test rendering by using the coarsest setting for the Poly buttons on the Control panel. The Poly options are 1,2,4, and 8, with 8 (using 2048 polygons to render a landscape) being the coarsest. This provides the fastest rendering time, but the lowest detail. After test rendering at 8 (or sometimes 4), I always do final renderings at level 1 (which uses 131,072 polygons) to achieve the finest detail.

Satisfied with my test, I added water. VistaPro offers some interesting options to accomplish this. Gadgets allow you to create lakes or rivers by clicking directly on the map. The X, Y, and Z coordinates of the cursor are always displayed for reference, and a lake will fill an area bounded by the Z elevation at the map point you specify with the mouse.

I chose, instead, to raise the sea level. The Sea gadget showed an elevation of 111 meters as the lowest point on the landscape. Wanting to see what the valley would look like flooded to a



In "Mars Lakes" (above), a region of Valles Marineris on Mars is shown flooded with 100 meters of water in a re-creation of what may have been part of the early history of that planet. The illustration was created with VistaPro, with additional help from Digi-View and DeluxePaint III.

depth of 100 meters, I entered a value of 211 in the Sea gadget. After new contours were recalculated, the map window showed interesting bodies of water scattered through the lower elevations of the three chasms.

I did the final rendering at Poly level 1 and saved the result. Loading that palette into Digi-View (NewTek), I froze it and digitized the inset of Valles Marineris (lower-left corner of the illustration) from a Viking photo. I assembled the finished illustration in DeluxePaint III (Electronic Arts) for use as part of an interactive Mars presentation I would later do with The Director, Version 2 (Right Answers Group).

I found it fascinating to flood that vast valley to different depths and compare the results with Viking images, searching for layering. Some other interesting options also came to mind: For added effect, I could generate a pair of images, offsetting the camera slightly. Merging the pair, I could then view it as a stereo image with X-Specs 3D (Haitex Resources). I could also save the image as a hi-res IFF24 file, load it into DCTV (Digital Creations), and view it in full NTSC color. The possibilities for what you can do with the results of your explorations are many and marvelous! ■

Joel Hagen's credits include work in art, astronomy, science fiction, and software development. Write to him at 10512 Sawyer, Oakdale, CA 95361. Please include a stamped, self-addressed envelope for a reply.

VIDEO SUITE

Toasting Fonts to Perfection

Third-party developers are now easing your access to Video Toaster fonts that will say it for you with style.

By Geoffrey Williams

THE COMBINATION OF the *NewTek* **Video Toaster**'s digital effects and its capacity for 24-bit character generation makes it possible for you to create some pretty eye-popping titling. All you need are the right fonts and a sense of design.

You can create Toaster fonts by using *Electronic Arts*' **DeluxePaint III** in lo-res mode to make large versions of each letter. The letters are turned into a standard Amiga font file, and then the Toaster font utility converts the file into a Toaster font. This utility (which does convert ColorFonts, despite what the documentation says) reduces the letters to one-fourth of their original size. It is unfortunate that, once converted, fonts can be displayed only in the Toaster's NTSC output, for not only does the conversion perform additional processing, but there is loss of detail in NTSC, causing the fonts to look dramatically different from the way you originally designed them.

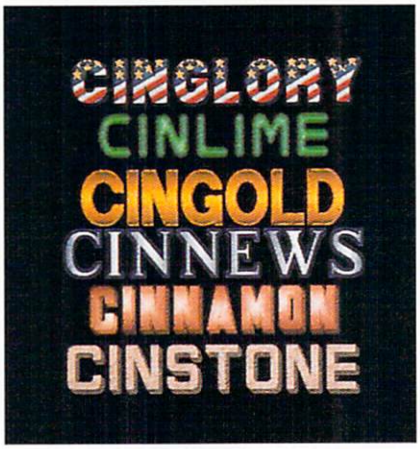
This makes creating Toaster fonts much more difficult than designing standard Amiga fonts. You face a lot of trial and error and redesigning along the way to get the look you want. Just be glad that third-party developers have spent countless hours doing the work for you. *(For developers' addresses, see list on p. 100.)*

Ready-Made Choices

Some of the most respected fonts in the Amiga community are those created by



Kara's metallic Toaster fonts.



Shereff's Cinnamon Toast fonts, set 2.

Kara Blohm of ***Kara Computer Graphics***. **Kara Fonts** have set a high standard for ColorFonts, and two recently released Toaster Fonts sets ($99.95 each) will not disappoint you. Set 1 contains Chrome Serif, Gold Serif, Gold Extrude, and Inflated, while set 2 boasts Marble, Brass, Granite, and Wood. These fonts are dimensional and beautifully designed, and they come with upper- and lowercase in two sizes.

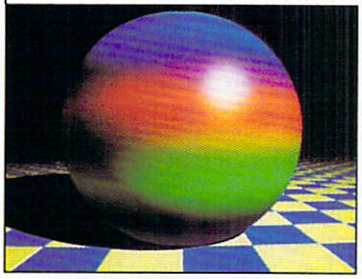
I've always liked ***Classic Concepts***' font sets, and it has taken a unique approach to marketing Toaster fonts. All of its new sets include both Toaster-font and standard bitmapped versions. Most of the fonts include the full upper- and lowercase character set and come in two to five sizes each. These are well designed, and Classic Concepts offers the largest variety of ColorFonts. It also has the best documentation around, with lots of information on fonts and basic typography.

You can choose from a number of Classic Concept packages. The **A*Video Professional Font System** ($249.95) contains 13 typefaces in varying sizes, for a total of 39 fonts. All except one are ColorFonts. The weather and sports fonts contain pictograms, enabling you easily to add graphics to your screens. **Video and Headline Fonts Take 3** ($129.95) includes eight typefaces; all except one are ColorFonts. There are 21 fonts in varying sizes. **CalliVideo Fonts** ($239.95) is a selection of script and calligraphic faces for adding flair and flourish. You get 12 typefaces (three monochrome) in several sizes, with 41 fonts in all.

Classic Concepts is the only company I know of that is concentrating on foreign language fonts, and its **EuroFonts** ($149.95 each) offers font sets ►

H A M - E

High quality RGB output for your Amiga

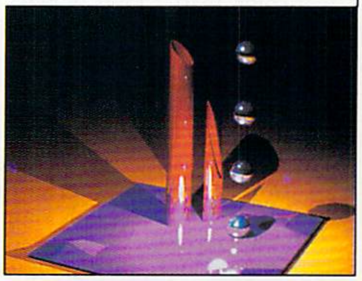


These images are **completely unretouched** photos taken from a stock 1084s RGB monitor using the basic HAM-E unit. They are pure RGB, *not* smeary composite.

The new HAM-E Plus is an even more potent yet virtually transparent, anti-alias engine which offers near photographic quality images on standard RGB monitors.

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There's not enough room to cover all the features of this system, so here's just a few.



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- Works w/std Amiga monitors
- Does *not* use Amiga power





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- RGB and HSV spreads
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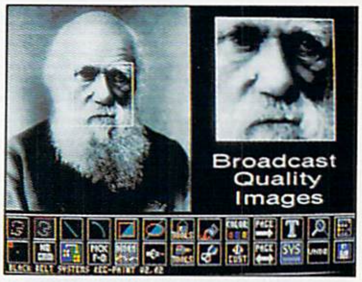
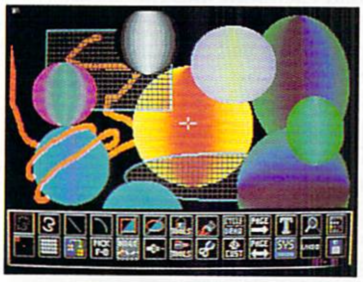


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for Cyrillic, Spanish/French, German, and Scandinavian languages. Keep in mind that you get both Toaster and Amiga formats for all of these.

One of the first companies to enter the Amiga CG market was ***Shereff Systems***, and it now has two sets of color Toaster fonts ($99.95 each). **Cinnamon Toast Fonts 1** contains Contrast, Engraved, Hammer, Jewel, and Scout. **Set 2** contains Cinnamon, Glory, Gold, Lime, News, and Stone. Each font comes in two sizes, but in uppercase only. While some of these are novelty fonts, they are still general enough to find a wide variety of uses.

Shereff also has a set of monochrome fonts based on the fonts available for its character generators. The **Bread & Butter** set ($99.95) includes 17 fonts, each in four sizes, for a total of 68. These were designed with antialiasing, so they are very clean (although all of the Toaster fonts I've seen so far look very smooth). A nice bonus with this package is a font converter that maintains the size of the Amiga font, rather than reducing it to one-fourth the size as does the Toaster utility. It will not work on ColorFonts, though.

The most extensive collection of monochrome Toaster fonts comes from ***Allied Studios***. There are fives sets of **1st Prize Toasted Fonts** ($69.95 a set), each having from seven to nine fonts, most of them in six sizes. With 39 typefaces and 228 fonts across the five sets, you have a lot of options. According to the documentation, these were created from high precision outline fonts, turned into bitmaps, and then converted to Toaster format. They look good, and give you a lot of the standard classic typefaces.

The issue of using outline fonts is significant. Many other platforms are moving to scaleable outline fonts for video work. While I have heard that there is no major revision to the Toaster CG expected in version 2.0 (which will disappoint those who have been grumbling about its deficiencies in that area), I think it is important for NewTek to consider adding scalable font technology in the following upgrade. Scalable font technology is the way of the future, and is fast becoming the standard on other computers. Needing a different font for each size takes up far too much room (the ten font sets I looked at took up over 30 megabytes), and you are limited to whatever sizes the developer happens to provide.

Now there is a way to get into scalable font technology with the Toaster. ***Gold Disk*** offers its complete collection of **Compugraphic** fonts with a special utility that will create bitmap versions in any sizes you desire. You can then convert them to Toaster format. While not as elegant as having this capability built into the Toaster, it does work.

Design Basics

Once you have some great fonts, the next step is to use them effectively. As you lay out a screen of text, keep in mind that the viewer will not be nearly as close to the screen as you are. Think how far you sit from your television when you watch it. Very small text is not readable, and it is used on TV only for detailed exclusions in those "only $19.95" commercials to ensure no one actually reads them.

When you design a screen of text, use the minimum number of words to get your message across. The fewer words on the screen, the larger you will be able to make the text and the easier it will be to read. As an incentive to stay brief, imagine that each word costs you $20. Rewrite your text to use five fewer words, and you save yourself $100. (Sure, its only imaginary, but think of all the things you can imagine buying with it.)

Choosing the right typestyle is important, but it is also a highly subjective art. Here are a few general rules to get you started:

Rule 1: Too many different styles make a screen look busy and difficult to read. Generally, you should use no more than three styles per screen (but this does not preclude using variations of the same type family, such as Helvetica Bold, Helvetica Narrow, and so on).

Rule 2: Sans Serif fonts, highly decorative fonts, and all-caps fonts should be used only for headlines and small areas of text. All-caps is one of the most difficult styles to read. Serif typefaces (they have a little flourish at the end of each stroke) are considered much more legible.

Rule 3: The typestyle should enhance the message. If it does not, you are better off with a more traditionally styled face. A soft and beautiful font should not be used for a message that implies action, just as that gorgeous Ice font would be a poor choice for a Valentine's Day message. Appropriateness is very important.

After you've chosen the font, you also need to choose the color (although you cannot change the color of color Toaster fonts). Although red seems like a great choice, true red does not work very well in NTSC, as it has a tendency to bleed. Light yellow, white, and light blue are much better for text. Some color combinations do not work very well together in NTSC, so it's a good idea to make written notes on the background and text-color combinations that you know look well on tape.

Most Toaster fonts are not well kerned, often requiring some adjustment of the spacing between letter pairs. The look you want is of uniform spacing between all letter pairs. Unfortunately, a bug in the Toaster CG keeps you from kerning color fonts as tightly as you might like, because when you cross a font's boundary, the color information in that part is lost.

Cheat Sheets

One of the first things I do when I get a new font is to grab a copy of the ITC type catalog (available at art supply stores) and determine to which traditional fonts my Amiga fonts correspond. Because only font names may be copyrighted, most computer fonts are similar to standard fonts in the ITC catalog. The lowercase g is one of the best letters to compare, as it is usually the most distinctive. I find that knowing the proper names of fonts makes it easier to organize them and helps me avoid useless duplication.

Another good habit is to compile a catalog with printed versions of your fonts and notes thereon. A real time saver is to load each font into the Toaster and type it on the screen to see how many characters will comfortably fit on a line in each size. Marking these numbers in your catalog and referring to them before you start laying out your headlines will save a lot of trial and error in trying to make things fit.

The first rule when laying out type on the screen is that it should help to convey your message. The Toaster CG is a powerful tool, but remember that although it can make pretty pictures, its true function is to produce readable text that effectively communicates your message. ■

Geoffrey Williams is executive producer for Creative Business Communication and head of the Amiga Video-Graphics Guild. Write to him c/o AmigaWorld *Editorial Dept., 80 Elm St., Peterborough, NH 03458.*

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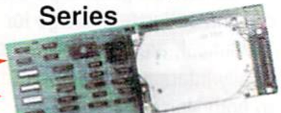
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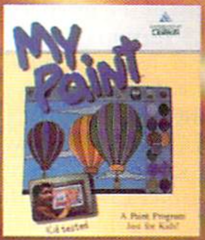
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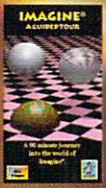
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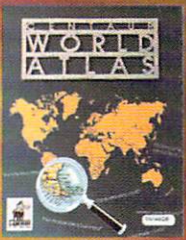


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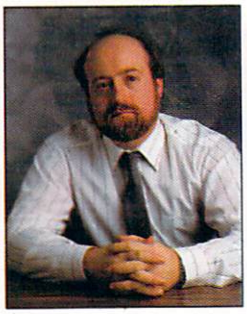
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HELP KEY

Lou unravels the mysteries of printer drivers and how to add MS-DOS compatibility to your system.

By Louis R. Wallace

Drive That Printer!

Q: *I have a one-megabyte A500, and I'm planning to buy a printer. Not wanting to run into the problem of getting a printer that isn't supported or quickly becomes discontinued, I looked around at my school and found that the Okidata Microline 320 is used everywhere. Can I use this IBM-style printer, and, if so, do I need a special cable? Or, do I need a printer that is specially designed for use with the Amiga?*

B. Taylor
Decatur, Illinois

Q: *I own an Amiga 500 with Workbench 1.3, and I have a Panasonic KX-P1180 dot-matrix printer. My problem is that I can't get the printer to output in styles such as the bold, italic or underline that I use in my word processor. Thinking I needed a new printer driver, I opened the Preferences tool and found only two printer drivers, Custom and generic. Where does one get other printer drivers for the Amiga?*

R. Keith
Monroe, North Carolina

A: One of the most common misconceptions besetting new Amiga users is that they must buy printers made specifically for the Amiga. Not so! The Amiga is capable of using just about any printer that can be used on an IBM or compatible. With the A500, A2000 and A3000 computers, you just need a standard printer cable. The A1000, however, does require a special cable. It will not work with a standard printer cable, and even hooking one up to the A1000 can damage your computer or printer. Ask your dealer or Commodore for details about the special cable.

Whichever computer you have, you also need a printer driver that is specific to your printer. These drivers must be located in the Workbench DEVS/PRINTERS drawer on your system disk. However, because of space limitations on a standard Workbench disk as it comes from Commodore, the driver you need may not be there. If such is the case, you can find additional drivers on the EXTRAS disk that came with your computer or AmigaDOS Enhancer package. These printer drivers are in the DEVS/PRINTERS drawer on the Extras 1.3 (or Extras 2.0) disk. To use one of them, just copy it from the Extras disk to your Workbench. You do this from the CLI with a command such as the following:

```
copy "Extras 1.3:devs/printers/EpsonQ" to
sys:devs/printers
```

This copies the EpsonQ printer driver from the Extras disk to your system or Workbench disk. You then need to load the Preferences program and select the new printer driver. Then save the new Preferences to disk by clicking on the Save option. From this point on, any attempt to print will use the newly selected printer driver.

Below is a list of the drivers you'll find on the 1.3 version of the Extras disk. If your printer is not listed, you can try some of the others. It's always a good bet to check one of the Epson drivers, as many printers will work in Epson mode. In addition, there are a great many printer drivers in the public domain. You can find these in users' group libraries, local or national BBSs, commercial telecommunication networks or even at your local dealer. While these are not official Commodore Amiga printer drivers, in many cases they will work well.

Extra's 1.3 Printer Drivers

Alphacom Alphapro 101
Brother HR-15XL
CalComp ColorMaster
CalComp ColorMaster2
Canon PJ-1080A
CBM MPS1000
Diablo 630
Diablo C-150
Diablo Advantage D25
EpsonQ
EpsonX (CBM MPS-1250)
EpsonXOld
HP DeskJet
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Bridging the Gap To MS-DOS

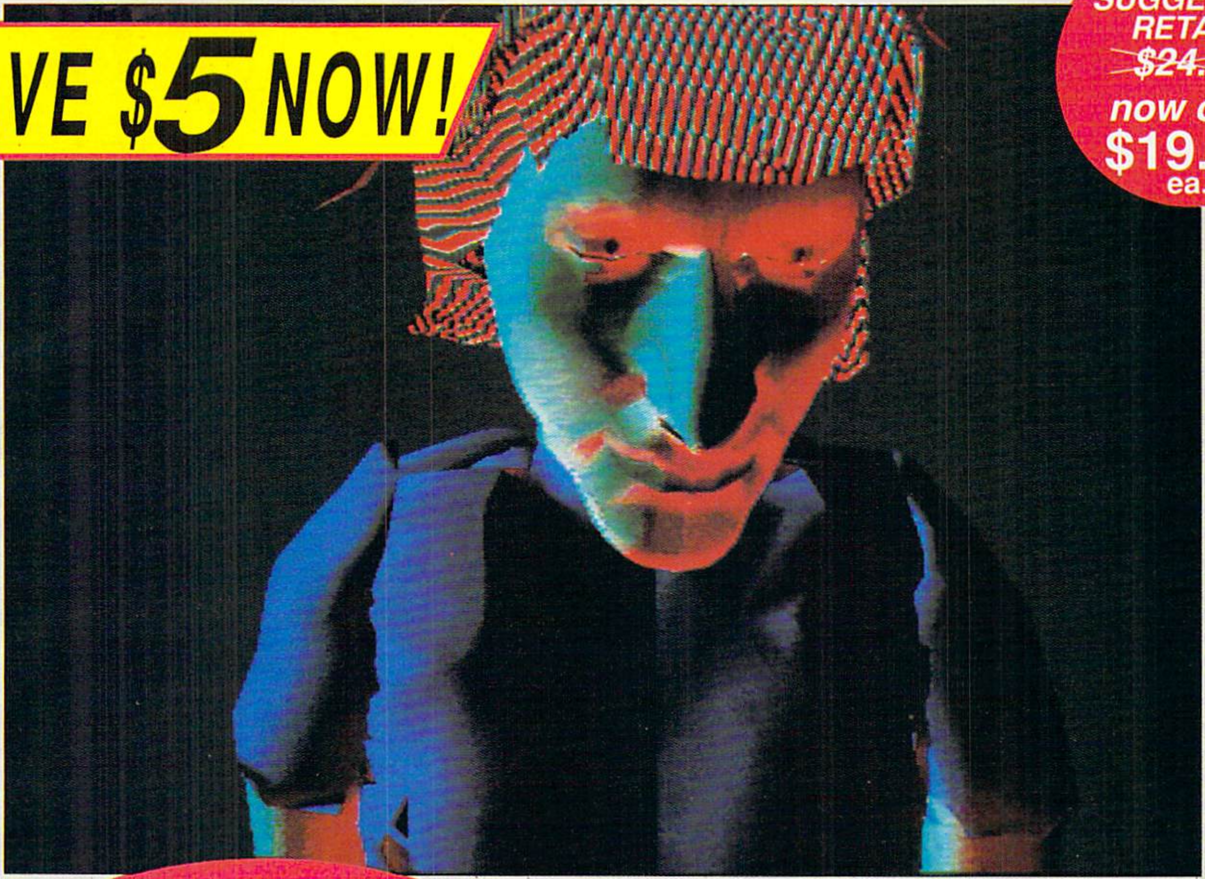
Q: *I'm a new Amiga owner, and I'm extraordinarily pleased with this wonderful machine. The only problem I have is that in school we use a lot of MS-DOS-based machines. I would like to be able to bring my work home and finish it, but of course I can't run MS-DOS software on an Amiga. I know it's possible to add an emulator to do so, but I don't know what is available. Can you help?*

W. Berry
San Francisco, California

A: There are a number of different ways to add MS-DOS compatibility to your Amiga system, with the approach you take somewhat dependent on the model of Amiga you have. Commodore makes two different MS-DOS emulator cards, called Bridgeboards, for the A2000, A2500 and A3000 computers. One of the cards (the A2088D, $499) is an XT-compatible; the other (the A2286, $799) is an AT. Both run in a window on the Amiga and emulate the PC's CGA display mode. A500s and A2000s can make use of the ATonce ($398), an AT card that is inserted between the 68000 CPU and the CPU socket. Another A500 PC hardware emulator is the Power PC ($525) board (originally distributed by Pulsar), but this product is now somewhat hard to find. ■

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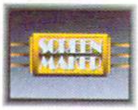
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Armour-Geddon

By Rob Lawrence

It's daybreak, and from the base tower, I watch a small speck slowly grow as it approaches through the lightening sky—one of my bombers returning from last night's raid on the enemy power line. It's leaking fuel from extensive flak damage, so I ease her down onto the blacktop and quickly taxi onto the lift and down into the compound for repair.

Launching a chopper for cover, I then bring my fighter out onto the runway and take off. Intelligence recon photos have informed me of an abandoned airstrip about seventy miles northeast—a possible location of the nuclear radiation shielding. I set the waypoint beacon and send the fighter screaming off toward the horizon to find it alone.

Switching back to my hovercraft, I see that it has almost reached the island. Activity here is heavy, so I arm missiles. A rocket from a pursuing chopper slams into my side. Turning sharply, I lock on and return fire. The bird goes down in flames, but my shields are critical. Two more hits from a land battery are enough to do me in.

Back at the base, my engineers have completed another heavy tank, which I arm with lasers, shells, and a cloaker. I then drive out under the base teleporter and transport myself out to telepod 4 (air-dropped earlier from a bomber). No sooner am I clear of the pod, than rocket fire explodes around me.



You'll need superior flight skills and strategies in order to achieve real success in this battle.

My cloaker is a gas guzzler, but I need it now. With the device engaged, I sit back and watch the bewildered fighters circle and fly away. Setting course for the enemy airfield, I activate my cannon and prepare for one massive onslaught...

These are just a few of the white-knuckled experiences I've been through in Psygnosis's latest masterpiece, Armour-Geddon ($44.99). If it sounds harder than hell, well, that's an understatement. If it sounds incredibly thrilling, read on.

In short, Armour-Geddon is simply the most breathtaking, mind-blowing 3-D simulation yet released for the Amiga. From the outstanding graphics to the hypersonic animation, from the exploding stereo sound to the seat-of-the-pants controllability, everything in this game is 100% pure Amiga!

I needn't bother with petty details of the plot (trust me, it's exciting and believable enough), but the play area is over 6400 square miles, and you are given six different vehicle types to pilot (all simultaneously, if you want). The sophisticated instrument and HUD displays are very accurate (IR night vision is especially neat), but you can control from almost any external view, including satellite. There's also an option for two comrades to play via serial link.

I could go on for days describing the interesting little details; you'd have to break my arm to get me to criticize this one. OK, so it's not hard-drive installable, the manual isn't exactly a novel, and the copy protec- ►

To locate developers of the games reviewed, see the "Manufacturers/Distributors" list on p. 100.

Crib Notes

By Peter Olafson

SOME FOLKS ARE hooked on the puzzle involved in getting into the Captain's Den in *Bane of the Cosmic Forge* (Sir-Tech, $59.95). This actually isn't as tough as it seems, as there are a couple of ways to go about it.

There are two steps involved—getting the password to the front door and the key giving access to that rather odd fellow in the cage at den center. The word can be had either from Queequeg—either by trade or by bashing it out of him. (As you may still need him to serve as your local weaponsmith and druggist, I'd suggest the former.) He wants a particular bit of information—not the actual item—and you'll need both the journal in which the reference is buried and a way to decipher it. If you've explored the dungeon thoroughly, this shouldn't be a problem. (For a little nonessential fun, go check out the item yourself later.)

You'll have quite a fight on your hands once you're in there, and when it's done, you're going to need a key. That can be had in another trade. If you've explored the castle towers, then you've probably come across a lovelorn bloke named L'Montes moaning about his "beloved," and it won't take you long to realize that—like most of the folks around here—she's not exactly human. (She isn't even alive.) Do you suppose you could help him out? Perhaps if you checked put the castle cellar...

Another nasty Bane riddle is the correct procedure to lower the drawbridge over the chasm. (Getting the panel open is child's play if you took Queequeg up on his "special.") The only thing tough about this puzzle is the stilted language. You need to simplify the instructions into a series of logical statements, such as "A comes before ►

tion is harder to crack than Fort Knox. There! I said it.

Overall, I give Armour-Geddon a 10.5 and the nomination for the best game of the year. Psygnosis would be stupid to neglect the development of a sequel. Don't pass this one up.

Eye of the Beholder

By Peter Olafson

If imitation is the sincerest form of flattery, then the boys at FTL must be blushing the color of purple worms, for Eye of the Beholder (Strategic Simulations Inc., $49.95) is the sincerest form of Dungeon Master I've seen yet. Indeed, in some respects, it goes it one better.



Zaladin's hurt; how will Yeric fare?

EOB, the first release in the publisher's new Legend series, is a mouse-driven, WYSIWYG, dungeon role-playing game in three dimensions. If you want to pick up a dagger, you click on it. The dagger becomes the cursor and then you click on the section of a character's inventory where you want it to go. If you want to experiment with an odd-looking section of wall in a deadend corridor, you simply click on that, and so on. Familiar stuff, to be sure, but it's the next best thing to being there.

Your party of four has been commissioned to rid Waterdeep, a Forgotten Realms city, of something nasty. You start in the sewers—which promptly cave in behind you. From there, it's all downhill until you meet the unseemly horror lurking at the bottom.

It's a great-looking game. DM and Chaos Strikes Back used only 16-color screens. EOB uses 32—the de facto standard for Amiga games these days—and the results are decidedly impressive. Each of the 12 levels is rendered in its own delightfully mordant palette, and the living glow provided by the extra 16 colors catapults EOB into a new dimension of realism.

The corridors are inhabited by the usual range of monsters (though they don't seem as thick on the ground as in some other games), and they've been done up in the same eye-catching style and even given distinctive movement sounds. (The giant leeches sort of slurp along, so you can hear them coming before they appear.)

Overall, the game struck me as a kinder, gentler DM. Indeed, EOB would be a good starter game for adventurers who've found DM too daunting. For instance, you no longer need to worry about light (or food, after a point), and there's an on-screen compass. The game also installs on hard disk, and the manual-based protection is mild.

On the other hand, while beauty is certainly in Eye of the Beholder, there's also some room for improvement. One saved-game position isn't enough. Character interaction and occasional text passages for atmosphere are nice additions, but too limited. Also, as in Dungeon Master, you can fight in only one direction at a time, so the troops in the rear have to stand there and take their lumps if they're cornered. (If you allow the party to be attacked from more than one direction, it's only fair to permit it to defend itself in the same way.) And I sometimes wished the game were a little less safe and more deeply felt.

None of the problems change the fact that this is a beautiful and intensely playable game. Onward, and downward. Just be sure to watch your back.

Gold of the Aztecs

By John Ryan

Take a 400-year-old Spanish map, throw in Aztec ruins with traps and pitfalls that would have made Indiana Jones proud, then add gorgeous graphics and ►

B." The first instruction involves the safety, and you have to use it twice.

I've also heard from some folks stuck in the mines and the pyramid, and no wonder. These mazes make careful mapping imperative, as you'll frequently need to go up a level (or two) to go down (and vice-versa). Label each stairway with the same designation on each of the levels it connects, and you'll find getting around is much easier.

Finally, freeing the wizard from the crystal on the mine's bottom level requires one particular implement, and it's well hidden. Not the pick. (Too bulky.) Check out Level 2 of the mine—not too far from the dwarf's forge.

• "Tricky" Level 26 in *Lemmings* (Psygnosis, $44.99) is a sticking point for many people. The little guys pour out at top speed; you have to save all of them, and you can't use a blocker. The only way I've found to lick it so far is to immediately turn the first half-dozen or so into bridge builders. Together, they will create a thick abutment that will sometimes serve in lieu of a blocker to turn their brother lemmings around, at which time you can breath a deep sigh and set to digging the tunnel to the exit. (If you find that lemmings scaling the bridge are themselves turning around and marching into the flames, try to stagger the point at which each builder starts his bridge. That should make the slope easier to climb.)

• A few folks are in the dark on how to deal with their "shadow" on Level 12 on Broderbund's *Prince of Persia* ($39.95). Remember that your shadow always does what you do. So if you were to put away your sword, it wouldn't be able to hurt you. You take it from there.

Level 3's treacherous jumps are also proving a pain for some people. Once you've mounted the central pillar, you'll need to head right. I know, I know. It looks as though there's nothing there. Hey, would Crib Notes send your poor little character to its death? (Ehhhh, could be, doc!) There's a platform, all right, and also a trigger that will open the gate some distance to the left.

Once you've hit the trigger, there's absolutely no time to spare. Run as fast as your little animated ►

sound. What do you have? You have Gold of the Aztecs (US Gold, $49.95), an action game of impressive sophisti cation and breadth.

As the bored and penniless Bret Conrad, a retired special forces veteran, you've been recruited to enter the tomb of Quetzalcoatl and recover the fabulous riches that supposedly lie somewhere within. There are a few problems, of course. The tomb is filled with snakes, hostile natives, traps, and just about every conceivable obstacle you can think of. Finding the gold, it seems, becomes secondary to surviving in this game. And surviving is not an easy task.

After being unceremoniously dumped into the jungle, you must slowly work your way through over 80 screens full of danger. To begin with, you have at your disposal a gun and machete to help deal with some of the foes you'll run into.

All action is controlled by either the joystick or (heaven help you) the keyboard. Your character can jump, climb, somersault, duck, pick up items, pull levers, shoot, or engage in close-quarters combat. In fact, there are over 32 joystick combinations available to help control Mr. Conrad.

Needless to say, things can get confusing—at least until you've had a lot of practice with the joystick. In the beginning you'll find yourself jumping when you meant to duck, or somersaulting at the worst moment—usually into some form of deadly trap. The unwieldy joystick operation is one of my two biggest complaints with this game.

If there was ever an action game that deserved the graphics and sound award of the year, it is Gold of the Aztecs. Like many European releases, it is a true pleasure to look at. As you control your on-screen character against the scrolling backdrop of the tomb and surrounding jungle, animation abounds everywhere. Well-defined adversaries move about in fluid movement, lifelike and superbly drawn. In fact, the author states that there are 7,000 frames of animation and 600K of music and sound effects. It shows. Rich in color and digitized sound, Gold of the Aztecs offers a lot to see and hear.



Feed him dinner or you'll be his dinner.

Rest assured, however, that you'll not have much time to indulge in frivolous sight-seeing. There's no way around dying many horrible deaths. Getting through the many screens this game offers means timing and practice, and, admittedly, it can get frustrating. While you do have several lives to work with, your hero dies with the first strike from an arrow, poison dart or other weapon. Instead, I would prefer to see damage slowly assessed for each hit.

Granted, software piracy is a problem these days, but the precautions against it border on paranoia. First of all, the game does not install on your hard drive (even though the IBM version does). Second, there is on-disk copy protection and a code wheel that is very difficult to read. Lastly, the program asks you to enter a code not once, not twice, but three times! Even after you're in the game, you'll be asked to input codes periodically. I realize that much of Europe is still using cassette-based software, but I am growing weary of European releases that do not support Amiga hard drives, yet insist on using off-disk and on-disk copy protection in tandem.

Superb graphics and sound aside, Gold of the Aztecs' playability leaves much to be desired, and the excessive on-disk and off-disk protection, coupled with the unwieldy joystick operation, earns it two thumbs down from this reviewer. After dying 50 times within the first three screens, I was ready to move on to kinder and gentler software.

legs can carry you, and take the final jump at the last second and at full speed. (Keep the fire button down, as you'll need to grab the ledge.) With any luck, you've timed it so the gate is slightly ajar, and you'll be able to pull yourself up and through. Phew. I'm sweaty just from writing that.

• Things You Might Have Overlooked Dept.: You can make Indy's life easier in the graphic adventure version of *Indiana Jones and the Last Crusade* (Lucasfilm, $49.95) if you spend some time checking out the stacks in the library before plunging into the catacombs. In addition to Mein Kampf—the obvious selection—there's a book on biplanes (black) and on catacombs (yellow). (If you come across any others, give a holler.)

And some odds and ends: You don't have to fight the guards in the castle. You should be able to avoid them or bluff your way past each one. (OK, you need to give Biff the Nazi a love tap, but that's hardly a fight.)

There's no way to prevent the biplane from crashing. And once you take to the road, you can get past the border guards—provided you show the pass signed by Hitler. (The pass is in Vogel's office at the castle; the signature should come on your visit to Berlin.)

Success in the third Grail trail relies on finding the right spot on the far side of the chasm. Hunt around. Sooner or later it'll click.

Next time: The two big problems with Elvira! (ahem). If you need help with an adventure game—no more CLI or utility questions, please!—you can reach me by US mail at 12 West 104th St., New York, NY 10025, and via electronic mail as P.OLAFSON on GEnie and Peteroo on People Link. □

Pick 'n Pile

By David Randall

Opening up the game box of Pick 'n Pile (UBI Soft, ($39.95) is shocking, as there is almost nothing inside. There's a disk, a small manual and the ever-present question and warranty cards; what's missing? The size of the box seems a waste of material, but as gameware packaging has become standardized, what can you do? ►



Stack matching patterns to pile up the points.

The instruction manual is short, to the point, and—like most manuals—neglects to tell you how to start the game. There are some vague instructions, but creativity is needed to get things rolling. Next is the menu, which is like the manual in obscurity; eventually you discover you must choose the one- or two-player option last, as this selection starts the game. After you've chosen the easy or difficult option, you decide on keyboard, mouse or joystick operation. Using the mouse is much faster than the other two, so I recommend it.

The game itself seems infantile at first: piling up objects of the same kind to make them disappear. "Now, which of these things is not like the other?" kept playing in my head. But playing Pick 'n Pile is not as easy as it first seems. Strategy and planning are needed to make sure no similar objects are left over when time runs out or you lose one of your original three lives.

The objects in the first few levels consist of balls of three different colors, square blocks, and assorted bonus "things" that add to or multiply your points when the column disappears. If a column worth over a thousand points is "offed," a diamond appears at the bottom of the screen, its color depending on the column's worth. When the bottom of the screen becomes full of diamonds, your score is greatly increased. Neat, eh?

The higher levels have you dealing with bombs, flowers, flames and vicious death heads, which are kinda cute but quite bothersome. I made it to a hundred and something thousand in a little over 20 screens, and to think that the difficult mode starts at 50 makes me quiver with fear and loathing.

Pick 'n Pile is a little game requiring strategy, planning and concentration, and it provides some fun, but your favorite it will not likely be. ■

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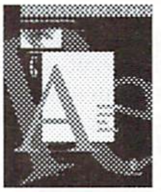


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Circle 10 on Reader Service card.

From p. 18.
nia Access mounting kits will work only with its own external drives; if you have a drive from another manufacturer, you're on your own (though you can still use it externally, of course).

The real test of an expansion box is how compatible it is with existing A2000 cards. California Access claims that the Bodega Bay uses a buffered bus that closely emulates the design of the Amiga A2000's own expansion bus. My own experience in using various hard drive and RAM-expansion products in the Bodega Bay supports this claim.

I had success with hard-drive controllers from GVP, Supra, Commodore, Microbotics, and Nexus, and with RAM boards from Supra, Commodore, and Microbotics. Even the old Micron memory board which failed to operate properly in several previous boxes seems to work fine in the Bodega Bay. The only popular A2000 boards that don't seem to work properly are the ICD RAM and hard-drive controller boards, but ICD reportedly has devised a simple fix for the problem.

Adding a Bodega Bay will not give your A500 all of the expansion capabilities of an A2000. It does not include a co-processor slot, so you can't add A2000-style accelerator boards (though you can still use accelerators like the CSA MegaMidget Racer, that plug into the processor socket). Nor does it have a video slot, so you can't plug in internal genlock boards, display enhancers, or a Video Toaster. A Toaster-compatible slot is slated for late in the year.

There is room, however, to add a flickerFixer card, using MicroWay's Denise Enhancer Board modification, and if you choose to use ICD's Flicker Free Video card, there is a space on the chassis for mounting the monitor connector. There are also cut-outs for joystick and mouse extension ports on the side, if you feel like home-brewing the required cables.

Is the Bodega Bay the answer to all of your expansion needs? That depends on just how much expansion you plan on doing. If you yearn for a hard drive and more memory, but not much else, you may find that a combination hard drive/memory expansion product designed specifically for the A500 is more compact and less expensive. If you plan on adding devices such as a multiserial card for a multiline BBS, a huge full-height hard drive or optical disk, or a number of disk drives of varying size and format, the Bodega Bay definitely has what it takes.

Proper Grammar

So you, too, can love having written.

By Daryell Sipper

DESPITE ALL THE modern communication methods, writing is still a necessary, though overlooked, skill. Everybody needs to write—even hardcore Amigaphiles—but not everyone writes well or even enjoys it.

Because computers are supposed to make our lives more manageable, we should use them in the writing process. While on-line spelling checkers and thesauruses help, they can go only so far. Writing tools such as grammar and style checkers already exist (and have

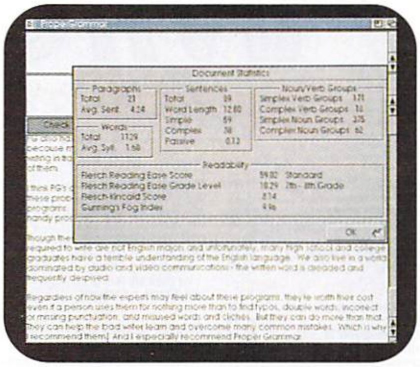
for some time) on other platforms. Now ***SoftWood***—a company that has always kept a watchful eye out for the productivity/business potential of the Amiga—offers similar advantages to Amiga users with Proper Grammar ($99.95).

English 101

Proper Grammar (PG) is a grammar-checking program that also checks for spelling errors. Beyond that, however, it also looks for cognitive, typographical, and editing errors. PG multitasks, provides an ARexx port, supports the Clipboard device and is system 2.0 compatible. Like its companion program, The Electric Thesaurus (see *AmigaWorld*, May '91, p. 97), PG is based on Houghton Mifflin's Computer-Aided Proofreading software line.

PG is one of the friendliest programs I have ever used. It has an intuitive interface and is easy to install on a hard drive. The well-organized manual is an effortless read. What's more, Softwood provides excellent technical support.

With PG installed on my hard drive, I loaded the program and investigated its pull-down menus and basic inter-



PG will help you monitor your verbiage.

face. I was amazed at how easy it was to learn. This is one of those rare programs that you can use without opening the manual.

After I loaded several text files I had written, PG found a few things it didn't like. Some of the "mistakes" I agreed with, but others I didn't. After all, PG has no idea of what my intent is—no grammar-checking program does. Obviously, you do not have to do what PG tells you to do, but an understanding of the English language will help you to make better decisions.

There is much to like in PG, especially its ability to explain grammar rules. You can ask the program to show you why something is incorrect. This is useful for the beginning writer.

Several document statistics are available to help you evaluate your writing. Information about word, sentence, and paragraph usage is displayed, as well as some facts about noun-verb usage. Standard readability indexes are given, such as Gunning's Fog index or the Flesch-Kincaid score. These are handy numbers, because some assignments require writing to specific reading levels using one or more of these indexes.

I also like being able to ignore any grammar rule I choose. For example, if I wanted to start sentences in this review with "And" or "But" to achieve a conversational style, all I would have to do is turn off the relevant rule before checking this piece.

PG's spell-checking feature is solid. It recognizes 135,000 words, including contractions. You can even add some words of your own, if you wish.

The program provides such basic

Continued on p. 84.

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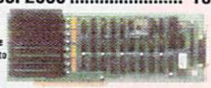
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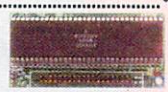
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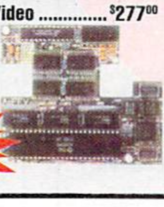
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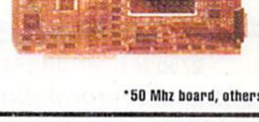
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Circle 13 on Reader Service card.

From p. 81.
text-editing features as cut, paste, and copy. In addition, the program retrieves and saves corrected text in many Amiga word-processing formats. Although you won't see any formatting on screen, PG remembers it. This feature provides word-processing file conversion as an added bonus. It's not perfect, but it works.

The manual, whose tutorial is a breeze, goes beyond telling you how to use PG; it also includes usage information and a glossary for those unfamiliar with grammatical terms. There's even an appendix covering the Houghton Mifflin Grammar Correction System. That's a friendly manual.

Bring in the Clouds

PG is a solid introduction of this type of program into the Amiga market. It's also one of the most stable programs I've ever used. There are, however, a few disappointments.

PG is not a style checker. In professional writing, different publications require different styles. This holds true for other kinds of writing, too. Résumés require a different style from internal office memos. Many companies dictate their own in-house writing styles. If you know how to update your startup sequence (by renaming some files), you can customize PG for limited style checking, but I'd like to see this feature incorporated into a future upgrade. Writing styles vary too widely for Softwood to ignore this feature.

In addition to its lack of style-checking ability, PG does not question the use of some commonly confused words, such as principle/principal or hear/here. While the manual acknowledges this shortcoming, a grammar-checking program should identify these usage problem areas, for they represent a weakness in a lot of writing. If nothing else, PG should remind you to check your dictionary.

PG sometimes has difficulty with sentence fragments. This is one of my own weaknesses because my basic writing style tends to be conversational, so I often find myself writing in fragments. I tried many examples of sentence fragments, and PG demonstrated only mixed success in finding them.

I think PG's claim that it corrects 95% of your writing errors is a little high, but what percentage would constitute success in this case? While claims such as these probably contribute to the skepticism many language experts have toward these programs, PG *will* catch most of the common errors you may make and serve as a handy proofreading companion in many instances.

Although grammar-checking programs in general are far from perfect, I believe they have value, for very few of us have extensive backgrounds in English. In a world dominated by audio and video communications, not enough attention is paid to writing skills, and the written word is often relegated to the status of endangered species.

Regardless of how language scholars feel, programs such as Proper Grammar are worth an investment—even if you use them only for rooting out typos, punctuation errors, and misused words. Even more useful is the fact that they can help you improve your writing by identifying many common mistakes. This is why I recommend them. ►

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RasterLink

A facelift and a new identity.

By Mitch Wells

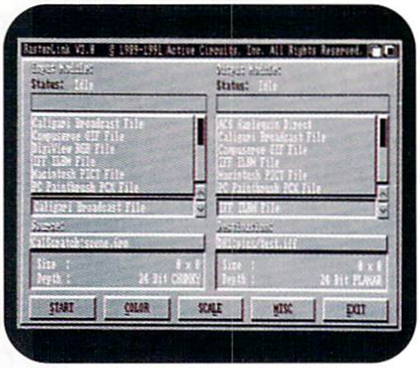
MORE AND MORE, graphic-conversion programs for the Amiga are offering support for 24-bit graphics. Creating animations in 24-bit planes, however, is a horse of a different color. While Black Belt's HAM-E allows for compressed RAM animations of images limited to 18 bits of color, they run extremely slowly. Both ASDG's Art Department Professional and HAM-E can automatically record frame-by-frame animation to video tape via ARexx and MicroIllusion's Transport Controller software (plus a capable controller and VTR), but to automate the process requires a knowledge of ARexx. Beside all that, ADPro will not display 24-bit images.

Complicating matters even further, neither ADPro nor HAM-E seem to like large bitmaps. Because ADPro loads the entire image into free RAM (and considering that the program itself takes a lot of RAM), I can't load a 24-bit image larger than a single screen into a 7MB machine. As for 300-DPI black-and-white scans, forget it. Because ADPro tries to convert the image to 8-bit gray scale and hold it in RAM before any conversion can occur, I can edit only very small scans at a time. Image Pro loads large bitmaps, but whenever it does, the program slows down to a crawl.

The Cavalry

Thankfully, RasterLink (***Active Circuits***, $199.95) solves these problems and offers features not found in other image-conversion packages: direct support for the Truevision Targa/Vista family of 16/24/32-bit boards, the ACS Harlequin, film recorders, and the new Targa+ series of frame buffers.

The latest version of the program formerly known as ImageLink, RasterLink is an image-conversion package that reads and writes the following file formats right out of the box: Caligari Broadcast (.6rn files), GIF, Digiview 21-bit, IFF (all formats except AHAM and ARES), Macintosh PICT, PCX (an IBM format), Byte-by-Byte Sculpt RGB, Sun Rasterfile, TIFF, Truevision Targa files, and Impulse RGBN. RasterLink can read images directly from a Targa/Vista board (installed in an A2000 via the Bridgeboard) and save them in any of the supported file formats; and it displays files directly to the ACS Harlequin, Impulse Firecracker 24 or Truevision Targa/Vista boards.



RasterLink easily converts your images.

Via supplied ARexx scripts or RasterLink's batch commands, the program can create a 24-bit file directly from Sculpt-Animate (while it's rendering) and either save the file in the format you desire or display it directly on the Harlequin, Firecracker 24, or Targa/Vista boards. The supplied scripts or batch commands can even trigger the Transport Controller to record frames to tape. RasterLink also works with Caligari Broadcast directly; or it loads, displays (on the appropriate hardware), and records a series of saved images from disk. This effectively turns the Amiga into a totally hands-free broadcast rendering machine.

Obviously, RasterLink converts between any of the aforementioned file formats. It not only converts the file formats themselves, however, but also allows you to choose the number of destination colors and whether or not to enable the program's dithering capabilities. In addition, you can dynamically re-size the image with no limits placed on input or destination size. This is possible because RasterLink reads these images in chunks from disk instead of trying to cram the image into memory as with ADPro or Image Pro.

RasterLink is easy to use. Simply choose the input and output destina-

Continued on p. 90.

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Circle 7 on Reader Service card.

From p. 86.
tion file formats (or choose the direct hardware device), and RasterLink greets you with a series of file requesters. Click on the color button to select the number of colors in your destination file, whether you want the image dithered (which you would if you're converting to a file format of fewer colors than your input file), or whether you want to save a compressed image in the case of Targa files.

The program offers a scale button for dynamically re-sizing your image. Simply type in your destination size in pixels and decide whether you want to maintain the pixel aspect ratio of the incoming image. Or, leave scaling alone if you want the same size out as in. If you have a number of images to convert from disk at one time, choose the Misc button and instruct the program to record frames to video or to beep after every converted frame.

RasterLink lets you designate the number of characters your filenames have attached to them as frame numbers, and where in each filename this number extension occurs. If you are working with batch commands, you must call up the file requester, hold down the left shift key, and then select the files in any order. RasterLink converts them after it sorts the order of the files and automatically appends an order number to the destination filename you select. Then just choose Start...that's all there is to it.

The Acid Test

In my office, we have full-page scanners that work within the IBM environment. To use scans from these on the Amiga, I simply save the scans in TIFF format. Then using CrossDOS (Central Coast Software), I read that file into RasterLink, which converts the image to IFF for use with Professional Page (Gold Disk), PageStream (Soft-Logik), DeluxePaint III (Electronic Arts), or any number of other Amiga programs. No matter how big the file is, RasterLink works.

Employing a Targa board and AT&T's Tempra software, another use we've found for RasterLink is hand-painting color or 6-bit gray-scale scans made with ASDG's Sharp JX-100 scanner and ScanLab 100. These 18-bit files are much larger than the Targa board can display, but Tempra can load and save them in chunks to display on the Targa board. Of course, any time I render using Sculpt-Animate 4D (Byte-by-Byte), I do so directly to a Targa board and record directly to tape using RasterLink, the supplied ARexx scripts, and Transport Controller.

RasterLink runs flawlessly. Unlike ImageLink, it does everything promised. I have converted images to and from Macintosh PICT, TIFF, PCX, GIF, Sculpt-Animate RGB, RGBN...everything worked perfectly. The manual is easy to read and has many tips on image conversion, not to mention a complete listing of all its ARexx commands.

This noncopy-protected program is a must for anyone trying to output professional work from Sculpt-Animate 4D or working with a color or black-and-white full-page scanner. And if you have Caligari Broadcast or any Impulse 3D rendering product, I heartily recommend this software as the conversion tool needed for compatibility with other Amiga-based software/hardware solutions.

ChromaKey

Tangled up in blue.

By Geoffrey Williams

HAVE YOU EVER wanted to wander the endless plains of Mars? Stand in the dungeons of Dungeon Master? Do the weather? Now you can, with ***MicroSearch***'s ChromaKey box ($395).

ChromaKeying is just the opposite of genlocking. Instead of laying graphics over video, you can lay video over computer-generated images. This is the same process used by countless weathermen. With ChromaKey, if a subject stands in front of a blue background, anything blue becomes invisible and you will see Amiga graphics, such as the exotic locales mentioned above, in its place. Anything that is not blue (you), will appear on top of the graphics.

In the Spotlight

ChromaKey plugs directly into your computer's RGB port. This means that you cannot use ChromaKey with Toaster- or DCTV-generated images. Nor does ChromaKey let you use other video sources as a background; you can only use Amiga-generated images.

In addition, ChromaKey requires an external genlock. To install, you plug

your video source into the ChromaKey box and then connect the ChromaKey video-out to your genlock's video-in. Then the magic happens. By moving the slider up or down, you can control the amount of live video that appears over the graphics. All the way up is all graphics; all the way down is all video. By finding the best middle ground, you can make adjustments to get the cleanest possible image. There is also a switch to disable the ChromaKey effect, so that you can use your genlock normally, and an invert switch that causes everything that is not blue to become transparent.

As is typical for lower-cost chromakey devices, you do get some blue fringing around the live video. This can be reduced by careful adjustment of the sliders and by proper use of lighting. Using computer graphics with a lot of blue in them will make the fringing less apparent.

Lighting is a critical factor for ChromaKeying. I did use halogen lights as recommended in the manual, but I found them much too bright. Hot spots of light on the subject I was keying caused distortion in the video signal and at times scrambled the picture. The best lighting approach is to aim your lights at large pieces of white posterboard. Light bounced off the posterboard gives you a wash of diffused, less harsh illumination, and it eliminates hot spots. You also need to reflect the light at an angle to avoid casting shadows on the blue background. A separate wash of lights on this background is also necessary. Once you have the proper lighting, you will get fairly good results.

I used the Omicron Omnigen genlock in tests, as it produces very clean keying. I also tested ChromaKey with a Supergen, which also worked fine. With only the Omnigen connected, the video signal is right on the money. After adding the ChromaKey, there is some signal degradation that shows up clearly on a waveform monitor.

ON THE BALL

Using a second Amiga, a second genlock and the old Sproing demo, I was able to have two Workbench screens with little boing balls flying all over them. On one computer using the ChromaKey box, I appeared keyed over the balls. The second computer provided a normal genlocked signal, displaying the balls on top of the video. The final result showed me standing in a flurry of flying balls going both in front of my image and behind it. If you have a second Amiga and genlock, you can have a lot fun with layering effects.

Products like Cyberscape, Vidi-Mice (both from Tensor Productions), and Mandalla (Vivid Group) make use of A-Squared's LIVE! digitizer to let your video image interact with graphics on screen, although you can see only a single-color digitized image of yourself. I thought it would be very nice to use ChromaKey to add my full-color video image to these programs.

To proceed, I connected the incoming video signal to my internal LIVE! board, which was then connected to the ChromaKey box. I used Electronic Arts' DeluxePaint III to create and display several buttons, and Vidi-Mice to assign those button areas to specific function keys.

When my ChromaKeyed video image touched the areas those buttons were in, the computer thought that a function key was being pressed. With the hot keys from the public-domain program, MachIII, I was able to assign those function keys to play sounds, show pictures, or do just about anything I wanted (even trigger an ARexx script to interact with another program). With very little effort, I had turned an ordinary paint program into a powerful interactive multimedia program that my video image controlled. Pretty slick stuff.

REALITY

ChromaKey is fussy. It does not like dramatic changes in the balance between live video and graphics. For example, when I walked into a scene, I got some video distortion, and when I moved further away from the camera, the image was less clean, and the slider needed to be readjusted. You need to stay in the picture and stay on pretty much the same plane. Even with the few minor limitations it possesses, it is an amazing little box, and the price cannot be beat.

Continued on p. 98.

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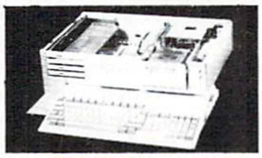


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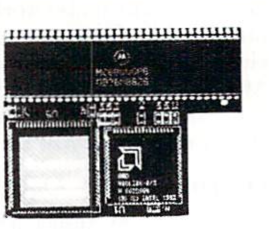
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AW Shucks!

Item: Our recent roundup of hard-drive interfaces ("Between a Slot and a Hard Place..." July, p. 22) contained one error. We reported that the SupraDrive with WordSync does not support the Rigid Disk Block standard, but that the company was working to provide such support. In fact, Supra's software was RDB compatible all along, and the software update, which should be out by the time you read this, gives enhanced support. Since then, Supra has announced that the new version will also improve formatting.

Item: Also in our July issue, we listed American Software as the distibutor of Mandarin Software's AMOS (see "Making a RUN for the Roses," p. 33). We have since learned that MicroPace also distributes the product.

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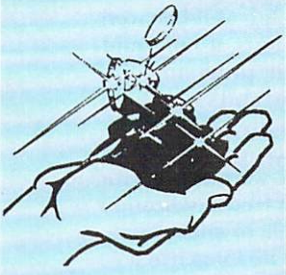
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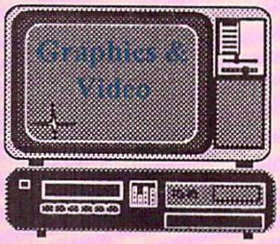
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From p.91.

HYPERBOOK

Takes composition to a new level.

By Bill Frazier

DEFINING ***GOLD DISK***'s Hyperbook is somewhat of a challenge. Is it a database, a word processor, or a presentation program? Hyperbook ($99.95), a free-form applications generator, incorporates all these functions—and more.

What you find when you open the Hyperbook's box is two noncopy-protected disks, a documentation manual, and a book of suggested applications. The indexed documentation is well organized and easy to understand, and it includes a three-part tutorial.

A LEG UP

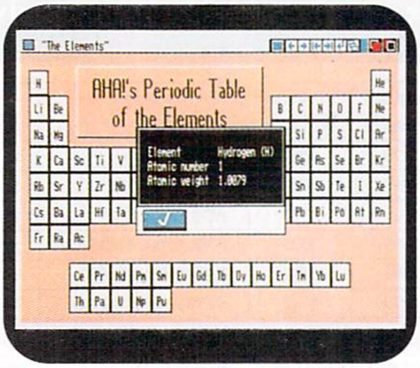
To load Hyperbook, click on the program icon or activate it from the CLI. It has all the typically familiar pull-down menus, with some keyboard shortcuts, and even makes use of the Help key, a rarity in Amiga programs.

There are five types of objects you may place on your screen: notes, buttons, drawings, pictures, and lists. You can assign each object one of seven different actions, or none at all. When you click on an object, Hyperbook can display pictures or text files, proceed to another page, hide or show objects, execute DOS commands, or execute ARexx scripts. In a nutshell, what it can do for you is up to you and your imagination.

With Hyperbook's Note Editor, you can add text to your application. While the Note Editor is not a complete word processor, I found it to be versatile and quite adequate. You can select font type, size, color, style, justification, and margins with Text Control. With Spacing Control, you can adjust baselines for super- or subscript fonts. This function also offers control over the spacing between lines of text and between letters. Then you can select background, border, and drop-shadow colors to highlight your messages.

KEEP IN TOUCH

To make your presentations more interesting and easier to use, you can create on-screen buttons that launch specific actions. Just as in adding notes, Hyperbook provides editing tools to help you fashion buttons.



Setting up an interactive screen is easy.

The Drawing Editor provides a means of designing your own drawings directly on the Hyperbook page. This feature offers a variety of brush sizes and colors, options to color and fill shapes, and the ability to draw most standard objects such as circles, ellipses, squares, rectangles, lines, and polygons. If you are not happy with your artwork at first, you can resize, rearrange, and delete until you are. The drawing editor will not replace your favorite paint program, but it does make it easy to add simple geometric shapes to your presentations.

Adding IFF pictures is probably the most challenging task in Hyperbook. The program accepts clips from pictures created in hi-res, low-res, Interlace, and even HAM mode, but the manual advises against using HAM pictures as clip sources because Hyperbook does not technically support HAM mode. In practice, it was difficult to make all but the simplest clips display properly.

To get good results, first change your Hyperbook-page color map to closely match the palette of the picture you wish to display. Since only one color map is available on a page, it becomes difficult or impossible to show multiple clips on a single page unless their colors match. I did achieve good results with all IFF resolutions whenever I used Hyperbook's Show Picture function.

Finally, Hyperbook allows you to add lines of text, or lists, to your applications. Each line represents an individual item within the list. You can assign a specific action to every item you add. For example, if you create a list to act as a mini-database within an application, the program will rearrange the contents just like a database when you click on the sort gadget. If you wish, you can create various sort keys with ARexx to define specific tasks such as rearranging a list of names in ascending alphabetical order, for example.

GET WITH THE PROGRAM

For the programmer, Hyperbook's ARexx support and the Hyperbook Macro Language (HML) are available. HML adds about 130 Hyperbook functions to ARexx for use within the program. The manual covers HML functions, and the samples disk includes a sample hyperbook called AREXX.hb, as well as several well-commented HML macros and programs. These sample macros are valuable training aids in understanding and using HML within a hyperbook application.

Hyperbook is a solid, well-behaved multitasker. During tests, it ran simultaneously with a paint program, word processor, text editor, and two other tasks launched from my startup-sequence. While I never saw the guru during testing, there were some error messages missing. If your application tries to read a text file or show a picture file from a disk no longer in a drive, the Hyperbook screen will flash, but does not display an error message such as "File Not Found."

The program offers two print options in the menu: print page and print text. The print-page option initiates a graphic screen dump of the currently displayed page. The print-text option allows you to print the text of all notes, buttons and lists, either on the current page or on all pages within your application. Neither option allows you to print all the text in a specific list object, such as the data in an address book. You could write an ARexx to get around the problem, but the task may be beyond the capabilities of the casual user.

The minimum requirements for Hyperbook are 1MB of RAM and a disk drive. The program runs easily with the 1MB of RAM, but extensive multitasking is then difficult, and trying to run it with just one drive would quickly become a disk-swapping nightmare. I would recommend two disk drives at a minimum. A hard drive is desirable to gain full benefit from the program, with instant access to ARexx macro libraries, as well as picture and clip libraries.

Hyperbook is the type of program that a novice with a 1MB Amiga and two disk drives can immediately use, yet it has sufficient versatility and complexity to interest the advanced Amiga programmer as well. ■

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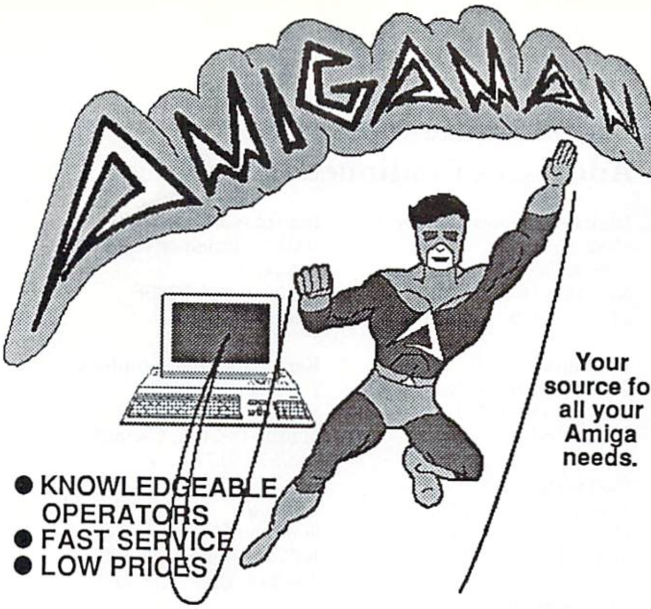
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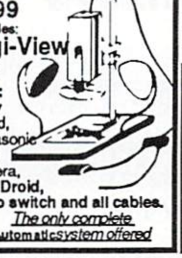
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Digital Graphics Library
1382 Third Ave.
Suite 333
New York, NY 10021
212/978-8508

Dynamix
99 W. 10th, Suite 224
Eugene, OR 97401
503/343-0772

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10006 Covintgton Dr.
Huntsville, AL 35803
205/881-6297

Electronic Arts
1820 Gateway Dr.
San Mateo, CA 94404
415/571-7171
800/245-4525

Fred Fish Catalog Disk Update
1835 E. Belmont Drive
Tempe, AZ 85284

Free Spirit Software
PO Box 128, 58 Noble St.
Kutztown, PA 19530
215/683-5609

Gold Disk
5155 Spectrum Way, Unit 5
Mississauga, Ont.
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416/602-4000
800/GOLD DISK

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600 Clark Ave.
King of Prussia, PA 19406
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Charleston, SC 29413
803/881-7518

Hologramophone Research
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St. Paul, MN 55105
612/228-9142

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6870 Shingle Creek
Parkway, Suite 112
Minneapolis, MN 55430
612/566-0221

Interactive Video Systems
7245 Garden Grove Blvd.
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Garden Grove, CA 92641
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Intercore Development
7 Dover Hill Dr.
Nesconset, NY 11767
516/361-6998

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708/215-5100

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708/816-6666

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805/349-1104

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Exton, PA 19341
215/MICROFT

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713/988-2818

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516/234-8110

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Boxboro, MA 017019
508/264-8000
800/632-4636

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New York, NY 10029
212/369-1733

New Horizons Software
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Suite 109
Austin, TX 78746
512/328-6650

NewTek
215 S.E. 8th St.
Topeka, KS 66603
913/354-1146
800/843-8934

Manufacturers'/Distributors' Addresses Continued

Okidata
532 Fellowship Rd.
Mount Laurel, NJ 08054
800/654-3282
609/235-2600

Pantone Inc.
55 Knickerbocker Rd.
Moonachie, NJ 07074
201/935-5500

Precision Software
8404 Sterling St., Suite A
Irving, TX 75063
214/929-4888

Progressive Peripherals & Software
464 Kalamath St.
Denver, CO 80204
303/825-4144

Psygnosis Ltd.
29 St. Mary's Court
Brookline, MA 02146
617/731-3553

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800/523-2696

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TTR Development
6701 Seybold Rd.
Madison, WI 53719
608/277-8071

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Distributed by Electronic Arts

Unili Graphics
143 Lorraine Ave.
Pittsburg, CA 94565
415/439-1580

US Gold
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Virtual Reality Laboratories
2341 Ganador Court
San Luis Obispo, CA 93401
805/545-8515 ■

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Public Domain Library

We have been the official Public Domain Library of all of the best Amiga magazines. Find out why these magazines choose us! Each of our disks are jam packed with only the best programs. The first two letters on each disk indicate the orientation of the disk; DD# intermediate to advanced - often contains source, WB# general interest - most programs can be run from the workbench, and FD# games and entertainment. Order our disk based catalog and receive a coupon for a **complimentary** volume with your next purchase. We have always used only SONY blank disks!

Featured Disk

DD79abcd: Amiga C Tutorial - This is the most comprehensive C language, Amiga orientated set of tutorials available. Includes full working examples, source code and an incredible set of lessons. Included are full discussions and examples of every topic on Amiga programming. Four disk set, counts as three.

New Disks

FD63: Quizzsho!; an interactive multimedia quiz game show program thattests your knowledge of DpaintIII. The questions can be changed so you mayquiz on whatever topic you'd like. FD62: PomPom Gunner. An extremely smooth and well done World War II gunnersimulation. Requires 1 meg of chip memory.

FD61: Games Solitaire; great graphics, plays two versions. Klide; aninteresting piece of eyecandy. Extreme Violence; 2 player kill or bekilled game. YATC; A Tetris clone with Artifical Intelligence. Genesis;create realistic 3d fractal worlds.

FD60: Games In Nebula, race over a 3d world to destroy enemyinstallations. Interferon; a great Dr. Mario clone. Enigma; is it a gameor a puzzle?

FD59: Game Potpourri Xenon III is an almost exact clone of the commercial game of the same name...a great shootemup. Crossword will take lists of words & automatically generate crossword puzzles for any Epson compatable printer.

FD58: GAMES! Includes Steinschlag; a great Tetris clone from Germany with music. SCombat: simulate battle between up to 40 players & monsters. Imperium Romanum: Battle up to 4 players for control of the Mediterranean in this Risk-esque game.

FD57: Arcade Games Includes 2 true commercial quality games. MegaBall is the successor to Ball; features 5 full musical scores, multiple levels and addicting gameplay. Gravity Attack is a psychadellic trip through several different worlds--each distinctly different.

WB95: Checkbook Accountant 2.0 This program is definitely commercialgrade; we've seen many checkbook programs and this is absolutely the best. Full budgeting, transaction recording and report generation.

WB94: Desert Storm This disk contains an interactive hypermediapresentation about the conflict in the Persian Gulf. Very nicely done with colorful maps/graphics.

WB93: Workbench Extras #2 This disk contains the utilities that Commodoreshould have shipped with the Amiga; VirusX4.0, Snap, FixDisk (recovercorrupt/deleted files), Disk Optimizer (floppy & hard), MachIII (screenblanker, hotkey, mouse accel., macro, clock utility), GOMF (a gurubuster)and PrintStudio.

Other Great Disks!

FD5: Tactical Games - BullRun - a Civil war battle game, Metro - you play the role of a city planner. Build wisely and your system will be a success, but poor planning will lead to disaster and financial ruin. Very very habit forming.

FD6: GAMES! - This disk is chock full of games including; Checkers, Clue, Gold - A new slide the pieces puzzle, Jeopard - An enhanced version of Risk, RushHour - Surprisingly addicting, and SpaceWar - Best described as a cross between Combat-Tanks and asteroids.

FD7: PACMAN - This disk contains several pacman type games including; PacMan87, MazMan and Zonix.

FD9: Moria -. This has great graphic controls, multiple spells, similar to Larn and Hack. Play time several weeks!

FD10: HackLite - A dungeon adventure game. Considered a must-have classic. This is the second release of this game on the Amiga. Great Amiga graphic interface. Play time several weeks!

FD11: Las Vegas and Card Games - Las Vegas Craps - The best Las Vegas Craps simulation every written for any computer. Contains extensive HELP features. Also Thirty-One,VideoPoker and more.

FD12A,FD12B: Star Trek, The Game - This is by far the best Star Trek game ever written for any computer. It features mouse control, good graphics, digitized sound effects and great gameplay. Counts as 2 disks. Req. 1Mb and two drives (or hd).

FD13: Board Games - contains multiplayer Monopoly, Dominoes, Paranoids, and others.

FD14: Dungeon Master Hints and Arcade Games - DM maps, spells, item location, and hints and more, also on this disk, Hball - an arkanoid/breakout type game, Trix - a Qix type clone.

FD17: Educational Games - This disk includes several games for the younger members including geography, math, science, and word games, also includes Wheel of Fortune.

FD20: Tactical Games - MechForce(3.72); A game that simulates combat between two or more giant, robot-like machines. Simple words can't begin to give you the feel of piloting a 30 - 40 foot tall, fire breathing, earth shaking colossus that obeys your every whim.

FD26:Arcade Games - Marble_slide, this is a truly commercial quality game. Similar to a Lucas game named PipeDreams, excellent playability and entertainment, Mutants , a small version of the arcade game of the same name, also SuperBreakout a pong/arkanoids type game.

FD27: Arcade Games - This disk is loaded with some great games. Includes, Raceorama a great racing car game with ten different courses, MiniBlast a helicopter gunship type clone, Shark in the same class as froger, and SBreakout the original breakout with more.

FD29: Shoot'em up's - WWII - you're the pilot of a WWII plane flying through enemy territory, you've just been spotted, good luck on you mission, SpKiller - try and penetrate enemy lines with this game, and Retaliator - another great game.

FD31: Games! - Air Traffic Control - a good ATC simulation game, Black Jack Lab - a full featured set of card games, ChessTel - play chess with your friend in distant and remote places with this game and a modem, labyrnth - a well done text adventure game (like an infocom game), and MouseTrap - a 3d maze game.

FD32:Flight Simulator - Includes an instrument flight simulator for a DC10.

FD33: Arcade Games - Ffreddy a mario brothers type of game, Gerbils a target practice game, PipeLine a German interpretation of Pipe Dreams, Tron a light cycles version, and wetroids a wonderful version of asteroids with a hilarious twist.

FD34: Games - Includes WellTrix a derivative of the addictive game of tetris, and new version of BackGammon. Also included are several new "Schwabie type Hacks".

FD35 Omega (v 1.3) - A new outstanding dungeon and outdoors adventure game in a similar vein as hack, rouge, and moria. This version is considerably faster and better that all previous versions. Play time several weeks or months.

FD37a & b:Tactical Games - Empire (2.2w) This great game comes highly recommended. With a full-featured graphic front end.

FD38:Games - Cribbage Master - A great cribbage game and tutor, Spades - a well done card came, ChineseCheckers - A computer version of this classic, Puzz - a slide piece puzzle game and construction set.

FD39a & b: Star Trek, The New Generation - This is a, completely different version of Star Trek than that found on FD12. This one was created by the German author Tobias. Now with English instructions. Very Excellent!!! Counts as two disks. Requires 512k memory.

FD42:Games - Includes SpaceWar3 - a remake of this original Amiga classic, Trippin - a fascinating board game of intrigue, strategy, and player manipulation, Dominion - an engrossing strategy game of galactic war and conquest, Frog - a frogger type clone, and Mines - a very good strategy board game.

FD44: Game - Mechfight is an out of this world role-playing adventure comparable to hack and moria. The setting, interplanetary colonies and space stations. In your quest to explore the world, take time out to liberate bad guys of their most valuable possessions, engage in a mortal combat or two against robots and alien life forms, pick up a new amiga 9000. Most of all, don't forget to stay alive...

FD47: Arcade Games - Contains DownHill - a demanding computer slalom ski game, MicroPac - a Workbench mini-pacman game, CrackOut - a break out clone, Jet - a superb aerial dogfight game, AmegaRace - an interesting asteroids type of game, and WindyDay - a unique arcade shoot'em up.

FD49:Chaos Cheats - This disk contains an everything you wanted to know about cheat set for Chaos Strikes Back, including full maps, spells, object locations, super characters and more.

FD50: Submarine Game - Sealance, one and a half years in the making, this is an outstanding submarine tactical game. Commercial quality, highly recommended.

FD52: Classics Games - PetersQuest a well done Mario brothers type of game, Jymbc a two player missile command clone, and Vstank a tank commander game.

FD53: Great Arcade - On this disk is a wonderful implementation of the ever popular classic arcade game Defender. Also contain Air Race a WWII flying ace arcade game, and Psycoblast new creation idea game.

FD56: Arcade - Includes SpaceWar, HueyRaid a well done helicopter arcade game, and PowerPong a great expanded pong game.

WB4:Telecommumnication - This disk contains several excellent pd communication programs designed to get you on line quickly and easily, Access (1.42) - A very nice ANSI term program based on Comm v1.34, but with the addition of transfer protocols, Comm (1.34) - Last version of one of the best public domain communications programs ever made on the Amiga, Handshake (2.12a) Handshake is a Full featured VT52/100/102/220

WB5 - Fonts #1- Several fonts (35) for the Amiga, also included are five PageStream fonts,and ShowFont - a font display program.

WB6: Video Fonts #2 - ShowFont(4.0) This program allows you to quickly and painlessly view all 256 characters in a typical font. Large AmigaDos system fonts (many up to 56pts).

WB7: Clip Art - This disk is loaded with black and white clip art. Art includes, trees, watches, tools, US and State maps, and more.

WB9:Icons - Truly a multitude of various types and kinds. Also includes IconMiester, IconLab, and others great utilities to help generate icons.

WB10:Virus Killers - The latest and best VirusX(4.0), Kv(2.1), and ZeroVirus(1.3).

WB11: Business - Clerk(4.0), finally a full featured business accounting PD program for the small to medium company. Includes receivables, payables, end of month and uch more.

WB12: Disk Utilities - This great disk is loaded with wonderful utilities for everything including making disk labels, disk cataloging, disk optimizing, disk and file recovery archive and organizing, and all sorts of file manipulation. A must have!

WB13: Printer Drivers and Generator - over 70 different drivers, and if these don't do it, with PrtDrvGen you can make your own.

WB14: Video- on this disk are several utilities for the video enthusiast. We have included multiple slates, video titling, Bars and Tone, Gray Scale, Screen fades and swipes, Interlace toggles, and SMPTE Calculators .Also on this disk is a full featured video cataloging program.

WB15: Business - This disk contains a spreadsheet, a database, a project/time management program and financial analysis (stocks).

WB16: Business - This disk contains an inventory manager, a loan analysis program, a great calendar/scheduler, a rolodex program, and pennywise a good "Cash Book" accounting for home or office.

WB18: Word/Text Processors - This disk contains the best editors. Includes, TextPlus (v2.2e) a full featured word processor, Dme(v1.35) a great programmers editor with strong macro features,TexED(v2.8) an enhanced Emacs type editor, and a spell checker.

WB20: General Interest - DiskSalv V1.42 a disk recovery program for all Amiga file systems, FixDisk V1.0 another file recovery program with features DiskSalv doesn't have, 3DLookt gives a 3D appearance to your WorkBench, Clean V1.01 a program to de-fragment memory, Tracer - trace any part of an image.

WB22: Fonts #3 - Several more great fonts. These, like the other font disks work great with Dpaint and WYSIWYG word processors.

WB23: Graphics and Plotting - Plot (20b) a three dimensional mathematical function plotter. Can plot any user defined function, BezSurf2 - produce awesome pictures of objects one could turn on a lathe. Can also map iff image files onto any surface that it can draw. Now compatible with most 3D packages, and VScreen - makes a virtual screen anywhere, great for DTP .

WB25:Educational - On this disk are two programs that can generate maps of differing types, World Data Base uses the CIA's data base to generate detailed maps of any entered user global coordinates. Also Paradox a great demonstration of Albert Einstein General Theory of Relativity.

WB26: Disk Utilities #2 - MrBackup, KwickBackup - two well done utilities to help with harddisk and floppy disk backups, FileMast - a binary file editor, Labelprinter - Disk label printer with very powerful features.

WB27: Nagel - 26 Patrick Nagel pictures of beautiful women.

WB29: Graphics and Sound - This disk has several different Mandelbrot type programs for generating stunning graphics. Includes, MandelMountains - a realistic terrain generator, Fracgen - generated recursive fractals from user input, Mandelbrot and Tmandel - two fast mandelbrot generators, also Mostra - the best IFF display program to date, will display ALL IFF's including Dynamic HAM, and Sound - a great IFF sound player, will play anything. Try this disk!

WB33:Circuit Board Design - several terrific routines for the electronic enthusiast, Including PCBtool - a circuit board design tool, LogicLab - circuit logic tester, and Mcad (1.26) a well done new release of this PD CAD program, now comes with predrawn common circuit components for insertion into schematics.

WB34: Utilities - Several well done utilities, some will require moderate knowledge of a CLI or Shell for setup, Chatter Box - this one will play any user defined sound after any event (ie. disk insert, mouse click, disk removal...), , Artm - The Amiga real time monitor, gives you full control of the Amiga OS, very powerful program, Helper - help program to make learning the CLI easier, and more!

WB35: 3d Graphics - This disk contains several neat programs to use with your 3d modeling/raytracing programs 3dFonts - Full vector font set for use with 3d programs, FontMaker - make 3d fonts from any system font, Make3DShape - create 3d shapes from any image, DumptoIFF - create 3d animations preserves pallet, and World3d - a demo program of a front end for use with DKBRender.

WB36: Graphics - On this disk are several programs to create stunning graphical images including, MPath - creates swirling galaxy images, Roses - produce an unlimited number of variations of images that a symmetrically similar to a rose, SimGen - display those spectacular images as part of your

WB36 cont. SimGen - display those spectacular images as part of your workbenck screen, and RayShade - a very good raytracing program, create your own beautiful 3d graphics.
Wb37: Educational - Educational games and puzzles that cover math, geography, spelling, and books. Ages 6 - 15
WB38: Plotting and Graphics - Plotxy is the most powerful full featured plotting package. Used by many colleges and universities. A welcome addition to our library! Highly recommended. Plans - a incredibly well done Computer Aided Drafting program, very full featured. Tesselator - a program that helps generates fantastic looking, recursive M.C. Ecsher type pictures.
WB39: Music - Intuitracker is a German offering of an exquisitely well done program that allows you to play music on your Amiga with CD like controls. Lets you strip out music from your favorite games or others and include them in your music library.
WB40: Music - "CD on a disk", 90 minutes of modern music on this well presented collection.
WB41: Music - MED an incredibly well done, full featured music editor. Create your own stunning music directly on your the Amiga. Similar to SoundTracker but better. Very powerful easy to use program.
WB43:Business - This disk contains AnalytiCalc - probably the most powerful spreadsheet program on the Amiga. A full featured spreadsheet with many features expected in a commercial package. Requires 1.2 MB of memory!
WB46:Clip Art - HighRes clip art with the following motifs - embellishments (borders, dodads ,...), people, and transportation.
WB48: Clip Art - HighRes clip art with the following motifs - Holidays, music, medical, and misc.
WB49abc:Animation Sampler - On this three disk sampler set (counts as two disks) are some of the best animations that have been created over the last three years. Several examples of "Movie" type animations some with spectacular raytraced reality (coolroby, watch, spigot and egg). Also several european style or "Demo" animation with incredible graphics and outstanding electronic music (akrilight, copersine, doc, dps2010, impact, and logodemo). These truly show off the creative edge of an Amiga!

SONY

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WB50: Animation - Seven of the best european style animations or "Demos", including - scientific 451, subway (a U.S. entrant, also our favorite), sunride, thrstdemo, tnight, waves, and woow.
WB51: Animation- On this disk are two excellent movie style animations including ShipRotation - a futuristic space ship orbiting a surrealistic world (one of the best), and RV-3 - a dpaintIII anim of a rather wacked out airplane.
WB53:Graphics- The disk contains C-light - The easiest to use raytracing we have seen to date. This one started out life as a full featured commercial product similar to Sculpt3d. Raytracing programs can generate stunning, realistically shaded objects. Also, sMovie - a full featured video text titler similar to ProVideo, Broadcast Titler. Great video scrolling, wipes, special effects, and more...
WB54:Printing - This disk contains several routines to help with the chore of printing. Includes Gothic - Finally a Banner printer for the PD! PrintStudio -a well implemented all-purpose printer-utility with a very comfortable graphic interface and many advanced features, Lila - with ease, print ASCII files to a PostScript printer, and many more.
WB55:Application - XCopyIII - a full featured disk copier, make backups of write protected disks. RoadRoute - find the quickest route from one city to another, highway description included, Diary - a diary program like "Dougy Howard M.D", Cal - a calendar program, Magman - a database tailored to maintain records on articles and publications.
WB57:Animation - This disk has several "Demo" style animations, Including, Blitter, Lolly, Sun5, vertigo, vortex, and xenmorph.
WB59:Business - contains a great, very full featured stock market technical analysis and tracking program, also an appointment calendar, and more.
WB61:Intermediate Utilities - Includes programs to help to drasticaly decrease flicker in interlace and hi-res modes (antiflick), an Atari-st emulator, an eprom programmer, turn your amiga into an eight channel digital data analyzer or ocilloscope, and more.
WB62:Midi Utilities - Several useful midi utilities including, programs to transfer to and from several music programs to midi, a midi sysex handler, a midi recorder with timebase, display midi info, file sequence player, and a few scores.
WB63:Disk Utilities #3 - Several highly recommended programs to aid in removing duplicate files from your hard drive, performing file backups, Binary editing, fast formatting, file recovery, disk track recovery, and forced DISK VALIDATION of corrupt disks.
WB66:Icons #2- Lot's of neat icons. Also, several wonderful programs that to let you create your own icons, modify and manipulate icons and info structures.
WB68:Music Utilities - several good utilities for the Amiga music enthusiast. Includes, Noisetracker - a great music creation program, Sonix2MOD - converts sonix to .mod files which then can be used by noisetracker, soundtraker, and MED, SpeakerSim - a speaker design tool demo, Wondersound is an additive harmonic instrument design tool with a separate envelope design window and 16 relative harmonic strength and phase angle controls.
WB69: Music - This disk has over 90 minutes of classical and modern electronic music for you Amiga.
WB70:Desk Top Pub - Atcp - transfer Macintosh screen fonts, Mac or IBM format .AFM metric files, to Amiga screen fonts and PPage .metric files. With this program open door to the libraries of Adobe and PostScript type!, Calendar - month templates in PS form, Post - a full featured post script file display and print utility.
WB71:C64 Emulation - The A64 Package is a complete, very powerful, Commodore 64 emulator.
WB75: Music - over 100 instruments files (.inst) and sample sound files (.ss) for your music programs.
WB76: Applications - This disk contains Stichery - a often requested knitting design program, Lotto - a rather complete lottery tracking and prediction utility, SSS - this screen capture program can grab almost any screen including games, Today - a personal calender, Tarot - fortune teller, and Grammar - grammar checker.
WB78: AV - On this disk are two Amiga Vision programs (bubbler, sync) written by Lou Wallace, chief technical editor of Amiga World. These programs are marvelous examples of how too's with AV.
WB79: Home & Business Accounting - Includes Ckbacct - the most complete checkbook accounting program going, LCDCalc - this well done calculator has a very large display and operates from the keyboard or mouse, Mileage master - monitor your automobile mileage with this mileage log, Grammar - a grammar checker, and Worldtime - find out what time it is in up to 50 global cities.
WB80:Graphics - Raytracing programs generate absolutely stunning realistic looking planes, rockets, buildings..., and surreal images often consisting of highly polished spheres and objects. 3-D Master is the most powerful EASY-TO-USE of it's kind we have seen to date. This is easily better, and more full featured, than similar commercial programs costing in the hundreds of dollars.
WB81: Great Applications - DataEasy a very easy to use, database program. Don't let the ease of use fool you, this is a very full featured database program including full printer control for address labels and mail merge applications. Also includes, TypeTut a good typing tutor, RLC a full featured label printer, Banner, a multi-font banner maker, and Budget a home accounting in a program. Highly recommended.
WB82:Animations - Four full length, well done "movie" style animations. Including, Coyote, JugglerII, GhostPool, and Mechanix. Two disk set, counts as one!
WB83: Computer Art - this disk has some of the best Amiga generated computer art that we have collected in the past 5 years.
WB85: Graphics - Contains several programs for manipulating 24 Bit color images (ham-e) and a rather nice Iff Image processing package.
WB86: Amiga Vision - Contains the Centurion Press, An Amiga newspaper by Lou Wallace.
WB88abc: The Complete Bible - A three disk set, with the entire text of the New Testament and Old Testament. Great search utilities.
WB90: Rippers, Strippers and Beats - For the Amiga music enthusiast, this disk contains many programs designed strip music from your favorite games and programs. Music can then be played with your favorite Pd Music program. Also contains Drums, a very nice drum machine. This disk can require moderate knowledge of the CLI.
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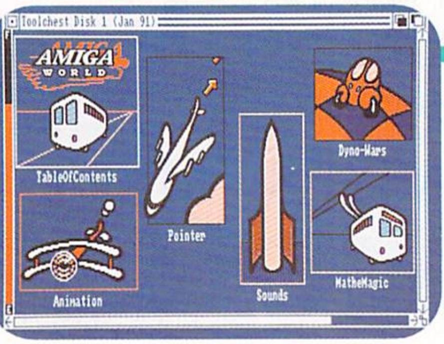
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The Last Word

Kudos, complaints, comments, concerns, and contributions from our readers.

Shame on You!

At first, I thought the magazine I received in the mail today was a belated April Fool's joke, but I slowly realized that this *Antic*-looking book was actually *AmigaWorld*! As a long-time *AmigaWorld* subscriber, I'm very disappointed in the changes. And to add insult to injury, there's not even a peep from the editorial staff about "streamlining operations to serve you better," or what not.

Casey Perry
Columbus, Ohio

Peep: Yes, Casey, we did combine three columns (Headliners, What's New?, and PD Prospector) into one (Overscan). This cleared the way for Video Suite, and left more elbow room for our bread and butter, which is articles and reviews.

—Editors

On the Other Hand...

I want to let you know that I very much approve of the changes that have been made in *AmigaWorld* over the past year or so. I would also like to add my voice to that of others who have requested more in-depth technical coverage in *AmigaWorld*. I'm sure there are technical articles that could be adapted from the *Tech Journal* for republication in *AW*.

Dan Young
Brampton, Ontario

Of Elephants and CDTV

A few thoughts prompted by your June issue...

Elwood Smith's illustration of the elephant jumping out of the computer is brilliant. Elwood Smith is brilliant. Keep him. Give him a raise.

While I appreciate everyone's enthusiasm for CDTV, let's not throw out intelligent criticism of available titles. World Vista Atlas, for instance, has some oddities. Check out the music of Switzerland. The text describes yodeling. The audio doesn't yodel! And the Indian music, described as employing a wide variety of instruments, especially percussion, has no percussion.

As for its images, have a look at the pictures of South Africa. Talk about avoiding the issues! The few people shown are black and very, very happy. No hint of white rule or shanty towns or apartheid—no hint of South African social structure whatsoever. Instead, a pot of molten ore, a few views of big industry, and some "happy natives." Come on; if South Africa is too hot to handle, then show no images at all.

If South Africa is too hot to handle, then show no images at all.

Nevertheless, I do think CDTV is a hot item, and I look forward to some good technical articles on how to create and master CDTV titles.

Nick Didkovsky
New York, N.Y.

Lets Grow Up, Boys!

In this day and age, many people are rethinking their way of life. Many others, however, are still deeply rooted in tradition, accepting without thinking the values and practices that underlie, for instance, using the attraction of the female sex to sell products to men. Appearing in *AmigaWorld*'s June issue are two examples of such advertising practices.

On page 60 we have a strong, dangerous-looking woman bearing a "censored" sign. This may be intended for the sake of modesty, but it is ironic that opposite, on page 61, another woman is pictured dangling her panties in a very immodest fashion. I assume she comes with the car, right?

Now turn it around and imagine an ad for washing machines with a photo of the Maytag repair man dangling his undershorts in the air to attract the attention of all those hungry homemakers. I may have hit upon a revolutionary new concept in advertising. How about it, fellows?

It is hardly acceptable to sell home appliances using a sexual bias, nor is it acceptable to use sex in selling software. In 1991, machismo should definitely be out, and sincerity in.

C.A. Price
Findlay, Ohio

Have Lap, Must Travel

I would like to take the capabilities of my Amiga with me when traveling, but it is extremely difficult to pack up my A2000 and carry it around. When is Commodore going to get with the technology and produce a laptop?

Lynn Bowler
APO, N.Y.

Boosting the A1000

In response to Elizabeth Guffey's letter ("The Last Word," June '91) and other cries of frustration over A1000 performance, I can say I've been there too. But there's hope. Through a deal offered at the New York Amiga show in May '90, Spirit Technology upgraded my unit to 2MB of RAM and performed a PAL modification (graphics trafficking) for a reasonable price. Try them. Haven't heard from the guru but once or twice since then.

Barry L. Cohen
New York, N.Y.

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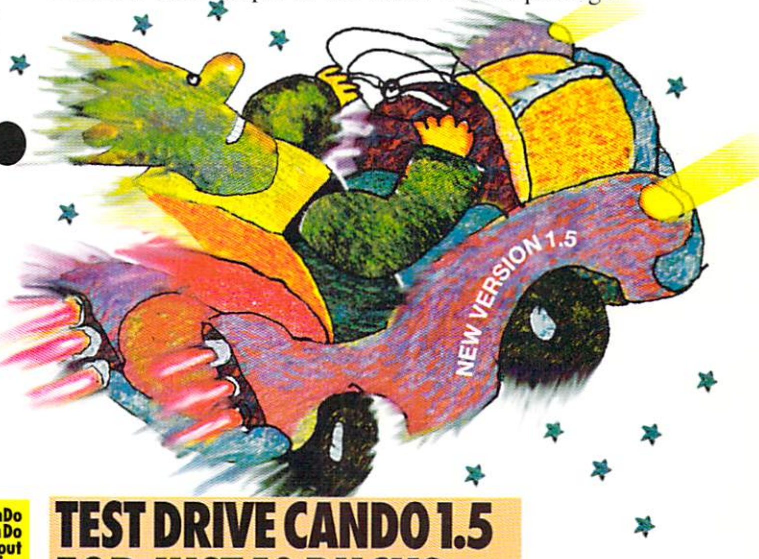
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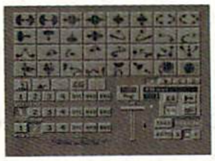


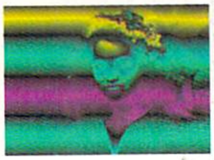


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